

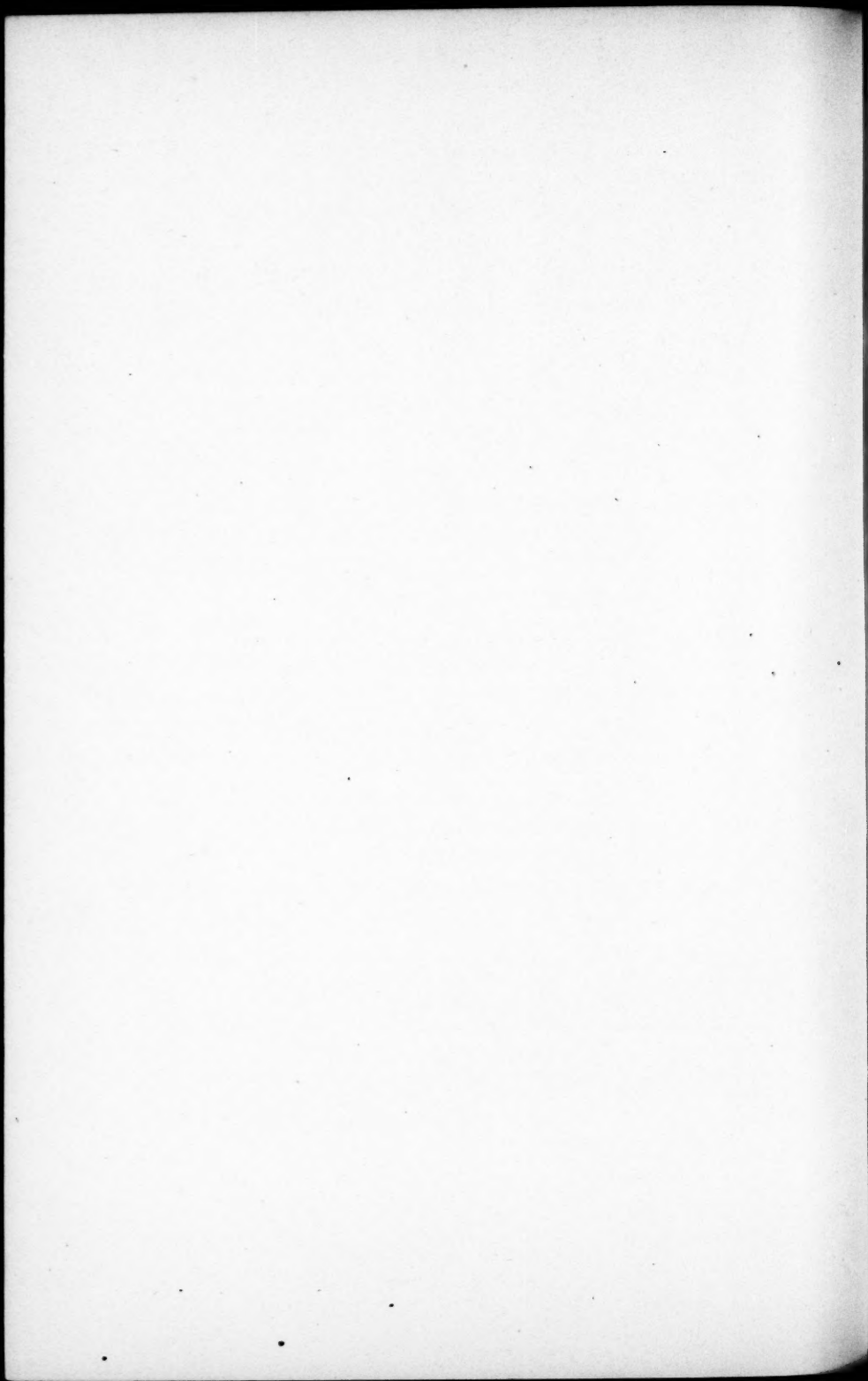
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CONTRIBUTIONS FROM THE CRYPTOGRAMIC LABORATORIES
OF HARVARD UNIVERSITY.—No. LXIX.

*NEW OR CRITICAL LABOULBENIALES FROM THE
ARGENTINE.*

BY ROLAND THAXTER.



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THE rapid accumulation during the past six years of Laboulbeniales, which have come to me from various parts of the world and now include some hundreds of new species and genera, has forced me to abandon my intention to figure all new forms as they were published; and it has again become necessary to resort to preliminary diagnoses, a third series of which is entered on with the present paper. It is, however, my purpose to illustrate all the species described in this series as soon as the necessary figures can be prepared and published. The exotic material which is now available is not only very varied, but is in far better condition than that which has formerly been obtained from dried specimens of insects, for the reason that a majority of the hosts have been collected directly into alcohol and the parasites removed before drying.

The examination of large series of forms in good condition has inevitably led to some modification of my views in regard to the limitations of certain genera and species, and while it has in some instances made clearer relationships or differences that were formerly in doubt, it has at the same time served to break down distinctions which were formerly regarded as more or less crucial, so that it has seemed best to modify the treatment of certain genera and species. Thus in the present paper, the limits of *Corethromyces*, for example, are considerably extended to include several genera hitherto kept distinct, and other changes will be noticed applying both to species and genera, which have seemed advisable in the light of a more complete knowledge of numerous forms.

The materials here considered were collected in Argentina, chiefly in the Buenos Aires region, the host insects having been captured

for the most part by myself in the Parque 3-de-Febrero, at Palermo, a suburb on the river above Buenos Aires: in the grounds of the Escuela Regional de Santa Catalina near the station of Llavallol, where a small planted wood of various trees affords a good collecting ground already familiar to mycologists, by name at least, from the large number of fungi collected there and described by Prof. Carlos Spegazzini, to whom I am much indebted for guiding me to this locality as well as to the Isla de Santiago near La Plata, where I spent two days collecting. Many hosts were also obtained in the grounds of the Quinta Mackern, at Temperley, a town about ten miles south of Buenos Aires, where I spent several weeks in the spring of 1906.

To Dr. Propile Spegazzini I am greatly indebted for numerous miscellaneous beetles which he kindly collected for me at La Plata and in Tucuman, both during my visit and after my return to the United States: to the Director of the Museo Nacional at Buenos Aires, and to Dr. J. Brèthes I am under obligations for various courtesies and for the privilege of examining the entomological collections of the Museum. For the determination of certain of the hosts I am indebted to Mr. Samuel Henshaw, Dr. Fenyès, Dr. Max Bernhauer, M. Pic, Dr. Malcolm Burr, Dr. Erno Csici and Col. Casey. To all these gentlemen I desire to express my appreciation of their kindness in thus assisting me.

With the exception of perhaps a half dozen species, of which the material is either too scanty or not in condition for description, the following enumeration includes all the forms obtained. As will be seen, a majority of them are hitherto undescribed, but it has seemed desirable also to append a list of the species obtained which are already known, and are listed below in alphabetical order. Of these there are in all forty-nine species, while of the new forms sixty-eight are included, with nine new generic types.

***Dimeromyces Anisolabis* nov. sp.**

Male individual, quite hyaline. Receptacle consisting of four superposed cells obliquely separated, except the upper; the basal subtriangular, larger than the two subequal cells above it, of which the upper always bears an antheridium, while a second may often arise from the cell next below it. The antheridia rather stout and short, the venter and stalk-cells about as long as the abruptly distinguished stout neck, which is bent abruptly outward distally. Appendage consisting of three superposed cells subtended by a more

or less conspicuous somewhat prominent red-brown septum; the tip of the appendage hardly extending to the tip of the antheridium. Total length to tip of antheridium, including foot (7μ), 58μ . Appendage 20μ . Receptacle, exclusive of foot, $18-20\mu$. Antheridium, including stalk-cell, $31 \times 8\mu$.

Female individual, almost hyaline, the perithecium becoming faintly yellowish. Receptacle consisting of five successively smaller cells superposed obliquely, except the uppermost which subtends the primary appendage, and from which it is separated by a red-brown septum, the subterminal cell also bearing a similar somewhat larger, usually five-celled appendage, distinguished from its small subtending cell by a red-brown septum; the subbasal cell of the receptacle bearing a still larger appendage, the somewhat irregular subtending cell of which projects on its inner side and is distally and externally separated from the slightly divergent and inflated portion of the appendage by a narrower deeply blackened isthmus, which includes a portion of the subtending cell, and more than half of the basal cell of the appendage proper. Perithecium usually single, a second rarely developed from the terminal cell of the receptacle, arising between its two appendages; long slender slightly enlarged distally, the tip not clearly distinguished, tapering slightly, inflated at the apex. Perithecia $75-100 \times 14\mu$. Receptacle, exclusive of foot, $25-30 \times 20\mu$. Primary appendage about 40μ . Lowest appendage, including its subtending cell, $60-70\mu$. Total length to tip of perithecium, including foot, $100-150\mu$.

On the inferior surface of the abdomen, near the tip, of *Anisolabis annulipes* Luc., Palermo, No. 1682.

This species is very closely allied to *D. Forficulae*, and may prove only a variety, although the abundant material does not indicate that the form is variable. The male is most readily distinguished by the presence of only one suffused septum in its appendage, as well as by its shorter stouter form and outcurved antheridial necks. The two appendages arising in the female of *D. Forficulae* from the terminal cell of the receptacle, are replaced by only one, and the character of the lower appendage, and the form of the perithecium are also different. A third closely allied form is known to me from the Amazon region.

***Dimeromyces Corynitis* nov. sp.**

Male individual, straw-yellow, the receptacle straight, or but slightly curved, consisting of a single series of from three to eight superposed cells, the basal usually larger; the rest small, broader than long, all

bearing antheridia and separated by horizontal, or but slightly oblique, septa; the series terminated by a unicellular mitriform appendage, somewhat variably inflated, symmetrical, broader than the axis which it terminates. Antheridia nearly horizontal, straight, two to seven in number, arising on one side in a single series from all the cells of the receptacle except the basal, their stalk-cells relatively long, sometimes exceeding in length the body of the antheridium, which is short and broad, the discharge tube short, straight and stout. Total length (including foot, $16\ \mu$) about $50-60 \times 9\ \mu$. Appendage-cell $14-20 \times 10-12\ \mu$. Antheridia about $35\ \mu$, the stalk-cell $9-18 \times 6\ \mu$, the venter $10 \times 12\ \mu$.

Female individual, pale straw-yellow. Receptacle similar to that of the male, consisting of four or five superposed cells terminated by a mitriform sterile appendage-cell, the cell immediately below it usually giving rise laterally to an erect, or slightly divergent, appendage of usually five or six successively smaller somewhat inflated cells; the first perithecium usually arising from the cell next below, one or two more perithecia rarely developed from the cells immediately below the first. Perithecium usually solitary, relatively large, its axis nearly at right angles to that of the receptacle or curved upward from it; usually slightly broader distally, the tip not clearly distinguished, the apex blunt, slightly sulcate. Spores (in perithecium) $60 \times 9\ \mu$. Perithecium $150-215 \times 30-40\ \mu$, the sporogenous portion $100-135\ \mu$. Appendage $60-100 \times 8\ \mu$. Receptacle to tip of primary appendage-cell, including foot, $80-100\ \mu$.

On the elytra of *Corynites ruficollis* Fabr., La Plata, No. 1459.

A clearly distinguished species, most readily recognized by its mitriform sterile appendage-cell. Both sexes appear to grow appressed on the elytra, the antheridia and perithecia projecting upward nearly at right angles.

***Dimorphomyces Meronevae*, nov. sp.**

Male individual, relatively large, nearly hyaline, or with faint reddish brown suffusions at the base of the appendage. Basal cell of the receptacle rather large, subtriangular, distally in contact with the outer half of the wedge-like base of the long antheridial stalk-cell; somewhat obliquely separated from the squarish subbasal cell; the appendage relatively short, not extending beyond the base of the neck of the antheridium, its basal cell rounded, somewhat longer than broad, sometimes nearly as large as the whole receptacle and dis-

tinguished from it by a marked indentation, distally narrower below the small squarish subbasal cell the terminal cell cylindrical, hyaline. Antheridium large, its slender stalk-cell as long as the inflated venter, the neck somewhat shorter than the stalk and venter combined, and slightly curved. Receptacle including foot, $40 \times 23 \mu$. Appendage 17μ . Antheridium $32-35 \mu$; neck 15μ , venter 10μ , stalk-cell 9μ .

Female individual. Receptacle relatively small, the subbasal cell larger than the basal (without its secondary extension), squarish, distinguished by a deep indentation from the basal cell of the appendage which is subequal, tinged with vinous brown, and rounded in form; the rest of the appendage bent strongly to one side, more deeply suffused, small, blunt or pointed, its two cells not distinguishable. Perithecium relatively large and long, the region below the tip conspicuously suffused with vinous brown, its inner margin concave, the tip hardly distinguished, more faintly suffused, somewhat asymmetrical, as is the hyaline blunt apex; the rest of the perithecium slightly inflated above, more faintly suffused, except the narrow hyaline base. Secondary appendages subcylindrical, somewhat less than half as long as the perithecium, two-celled, the basal cells thick-walled, about half as long as the thin-walled blunt terminal cell. The secondary receptacle narrow, horizontal, or nearly so; its four to eight cells bordered by the narrow extension of the basal cell of the receptacle, the one to three erect perithecia and the appendages rising vertically from it. Perithecia $65-70 \times 12-15 \mu$. Spores (in perithecium) $14 \times 1.5 \mu$. Receptacle, including foot, 18μ . Secondary receptacle $18-35 \mu$. Primary appendage $18 \times 9 \mu$.

On the legs of *Meroneva Sharpi* L. A., Temperley, No. 1503, in company with *Monoicomyces nigrescens*.

A very clearly marked species which was found but once, and is described from four pairs of mature individuals.

Dimorphomyces verticalis nov. sp.

Male individual, relatively small, tinged with blackish brown, the basal cell small, very obliquely separated from the slightly longer narrower subbasal cell which extends downward nearly to its base, and upward to the end of the stalk-cell of the usually single antheridium, which is erect, the venter but slightly inflated; with the short rather stout hardly tapering neck abruptly distinguished. Appendage parallel to the antheridium, or but slightly divergent, consisting of three cells: the basal longer than broad, and distally rounded to the

very small much narrower squarish subbasal cell; the terminal cell hyaline elongate slightly inflated below, tapering distally; sometimes extending to or beyond the tip of the antheridium. Total length, including foot, 60 μ . Antheridium, including stalk-cell, 35 μ ; its neck 8 μ . Appendage, 20–30 μ .

Female individual, becoming dark blackish brown, the primary appendage erect, consisting of a larger basal cell hardly twice as long as broad, a narrower subbasal cell broader than long, and a terminal cell, hyaline or paler distally, longer than broad, inflated or degenerating. Perithecia usually not exceeding three in number, elongate, straight or curved, blackish brown, very slightly inflated; the tip bluntly rounded, or asymmetrical and snout-like, when viewed laterally: the hyaline apex subtended, on the inner side, by a darker shade. The secondary appendages of two or three superposed cells, hardly a third as long as the perithecia, alternating with them, or somewhat irregular in position, especially above; the series of cells which bears them, and the marginal extension of the basal cell of the receptacle nearly erect, or diverging from the appendage at an angle of not more than 45°. Perithecia 75–100 \times 15–20 μ . Secondary appendages 25–30 μ . Total length to tip of highest perithecium 100–200 μ ; to tip of secondary receptacle 75–120 μ .

On *Atheta* sp., Palermo, Nos. 1690, 1965, and 1966.

This species, which was found not infrequently, appears to vary considerably; the older and better developed individuals becoming very dark, and attaining a considerable size. Such individuals, which usually occur on the abdomen, do not appear to be separable from smaller and paler forms which occur, usually, on the legs, antennae and head.

***Rickia Lispini* nov. sp.**

Receptacle short and stout, the basal cell small, hardly longer than broad; the main body consisting of a central cell lying between a pair of marginal cells superposed on either side of it, the two lower united below it and separating it completely from the basal cell; while its extremity lies in oblique contact with the lower half, or less, of the perithecium; the upper marginal cell on one side cutting off one to two small appendiculate cells which subtend the base of the perithecium; the upper marginal cell on the opposite side, bearing two or three to six simple appendages, their origins often lying nearly horizontally, one to five of them arising from single small cells successively separated

from above downward (within outward), one, however, always subtended by two minute cells placed not always next the perithecium, and representing the primary and originally terminal appendage. Perithecium short and stout, but slightly longer than its contained spores, subellipsoid to ovoid, the tip hardly distinguished, the apex truncate-papillate. Spores $28 \times 4 \mu$. Perithecia $40-50 \times 27-31 \mu$. Receptacle $60-75 \times 28-35 \mu$. Appendages $20-55 \mu$. Total length $75-120 \mu$, average $90-100 \mu$.

On the abodmen etc. of *Lispinus tenellus* Er., Llavallol No. 1502. Also from Los Amates, Guatemala, No. 1625 (Kellerman).

Were it not for the fact that the genus *Rickia*, as illustrated by the material accumulated from various parts of the world, proves to be a large and very varied one, I should be inclined to separate the present form under a special generic name; and, although it seems best to treat it as a very simple type of *Rickia*, it differs from all others in the fact that all its appendages come from the two distal marginal cells. In a few specimens I have seen a structure associated with the appendages which may be an antheridium; but, in a majority of individuals these organs seem to be quite absent. This appears to be the case also in other and more typically developed species of the genus.

***Rickia Melanophthalmae* nov. sp.**

Hyaline. Perithecium long-ovoid, with a broad truncate apex which may be flat or slightly sulcate, the lumen of the basal wall-cells obliterated, their thick walls forming an ellipsoid cavity in which the spores, which nearly equal it in length, lie somewhat obliquely, and above which the three upper tiers of small subequal wall-cells persist. Receptacle broad and compact, multicellular above the single basal cell; the cells in three vertical series, two lateral and one median; one of the outer consisting of a single somewhat elongated cell, which may rarely be divided into two or three cells, above which lie the three visible basal cells of the perithecium, which are subequal and form an integral part of the receptacle in no way distinguished from it; the marginal series on the opposite side consisting of two to four cells, usually rather narrow, each usually cutting off a small cell obliquely, distally and externally, the uppermost subtending a hardly distinguishable antheridium, the rest developing neither appendages nor antheridia and often becoming wholly obliterated; the series terminated by a small cell which bears the small short stout primary appendage of the usual type; the median series consisting of three superposed

cells, the two lower larger, the upper lying beside the base of the perithecium. Perithecium $35-43 \times 23 \mu$. Spores about $40 \times 2.5 \mu$. Receptacle $40 \times 27-31 \mu$. Total length $75-85 \mu$.

On the elytra of a minute beetle belonging to the genus *Melanophthalma*. Llavallol, No. 1980.

This curious little form is distinguished by the apparent absence of any secondary appendages, the cells which are separated to subtend them in other species, developing nothing more than mere rudiments, and often becoming quite obliterated by the general enlargement of the receptacle, the cells of which may become somewhat displaced. On the perithecial side the usually single marginal cell cuts off no subtending cell even when it becomes divided. Like the preceding species this form is distinctly aberrant.

***Monoicomycetes Caloderae* nov. sp.**

Straw-colored, the perithecia and older appendages becoming tinged with amber-brown. Basal cell of the receptacle stout, squarish, the subbasal cell less than half as large, pale straw-colored or nearly hyaline. Primary appendage concolorous with the receptacle, elongate, its tip often extending above the tips of the perithecia; tapering slightly to a blunt extremity, simple or usually producing one or two branches from the third or fourth cells on the inner side. The two primary fertile branches variously complicated by successive proliferation of the secondary branches, the branchlets of which may be of the second or even the fourth order, the perithecia subtending the antheridia. Antheridium of the usual type, its tiers and appendages somewhat variably developed, but resembling in general those of *M. Homalotae*. Perithecia rather short and stout usually symmetrical, inflated below, conical above; the apex small, blunt; the basal cell-region not distinguished from the ascigerous region; the stalk-cell well defined, its basal half usually slightly constricted and suffused with vinous amber-brown. Spores $38 \times 4 \mu$. Perithecia, including basal cell-region, $80-90 \times 30-35 \mu$; the stalk-cell $25 \times 12 \mu$. Receptacle about $25 \times 20 \mu$. Primary appendage $150-175 \mu$. Appendages $75-100 \mu$. Antheridium $90 \times 35 \mu$.

Usually on the abdomen of *Calodera* sp. Nos. 1504, 1515, 1691 and 1991, Palermo, Temperley and Llavallol.

Although very common this species is seldom if ever found in good condition, perhaps owing to certain peculiar habits of its host. The appendages are usually broken off entirely and the development of

the fertile branches may be very irregular. Although perhaps a dozen perithecia may be formed on a single individual, many are apt to be broken and but few ever mature. The species is most nearly allied to *H. similis* and *H. Homalotae* from both of which it is distinguished by the character of its primary appendage and by the proliferous habit of its fertile branches. The genus of the host has been determined by Dr. Fenyes.

MONOICOMYCES INFUSCATUS Speg.

Receptacle very small, the basal cell becoming more or less suffused with smoky brown, broader than long, the hyaline subbasal cell hardly distinguishable. Primary appendage stiff rigid upcurved, black externally from its base upward, simple or producing a single branch above its subbasal cell which may be similarly blackened. Fertile branches usually producing a single perithecium and antheridium, more rarely two by proliferation, suffused, especially externally, with blackish olive-brown; the two distal tiers forming a well defined rounded enlargement, terminated by two erect blackened rigid appressed hyaline-tipped appendages. Perithecium hyaline or faintly olivaceous, slightly asymmetrical, subfusiform, the tip hardly distinguished, the apex blunt, the narrower basal cell region not distinguished, the basal cells relatively large, the stalk-cell short and broad, not abruptly distinguished below the basal cell-region. Spores, in perithecium, about $20 \times 2.7 \mu$. Perithecia $90 \times 26 \mu$, the stalk-cell $18 \times 12 \mu$. Antheridium $45-70 \mu$, its appendages $45-70 \mu$. Primary appendage with its branches, 110μ . Receptacle $18 \times 12 \mu$.

On the abdomen of *Xantholinus Andinus* Fauv., No. 1689, Palermo, No. 1988, Llavallol.

A small and apparently rare species, very closely allied to *M. nigrescens* and distinguished especially by its rigid black primary appendage.

Mimeomyces nov. gen.

Receptacle consisting of two superposed cells, the upper bearing terminally the single appendage and the stalk-cell of the single perithecium. Appendage consisting of a basal cell and several cells superposed above it, the lower bearing single free compound antheridia on the inner side, the upper bearing sterile branches. The antheridia consisting of a group of apparently six similar antheridial cells and originating directly from the slightly swollen extremity of a short

stalk-cell and discharging at the same level into the efferent tube. Perithecia stalked and normal.

The characters of this genus correspond exactly to those of *Corethromyces Quedionuchi* which occurs with it on the same host, and in general to that section of *Corethromyces* formerly separated under *Sphaleromyces*, except that the lower branches of the appendages bear conspicuous, typically developed compound antheridia. It seems altogether probable that certain of the species hitherto placed in *Sphaleromyces*, and in which the presence of antheridia has not yet been definitely recognized, may find a place in the present genus when their antheridial characters are known. A careful reexamination of my material of these species has, however, failed to show any indication of the conspicuous antheridia which occur in the present instance.

***Mimeomyces decipiens* nov. sp.**

Perithecium pale translucent yellowish, the basal cells relatively large and clearly distinguished, the ascigerous part usually bent slightly toward the appendages, distally slightly inflated, symmetrical, conical; the tip hardly distinguished, terminating in a small subtruncate apex: stalk-cell short, broader than its length. Basal cell of the receptacle elongate, rather abruptly broader distally, colorous with the perithecium or more or less deeply and completely suffused with blackish brown, sometimes quite opaque; the subbasal cell small, subtriangular. Appendage consisting of from four to five obliquely superposed cells, subequal in length, the distal ones smaller, the basal without appendages, the subbasal and often the cell above it bearing each a single compound antheridium on a short stalk-cell. Perithecium (sporogenous portion) $55-65 \times 24 \mu$, including basal and stalk-cells $75-95 \mu$. Main appendage $50-55 \mu$, its longest branches 60μ . Receptacle $50-70 \mu$, basal cell (longest) 60μ . Total length to tip of perithecium $125-150 \mu$. Spores about 30×2.5 (measured in ascus).

On legs and abdomen of *Quedius sorecocephalus* Bernh. (nov. sp.), Llavallol, No. 1520.

The general form and coloration of this species is very similar to that of *Corethromyces Quedionuchi* which may occur with it, but the color and the form of the tip of the perithecium, as well as the conspicuous antheridia distinguish it at a glance. One or more accessory antheridia are sometimes present near the base of the appendage. The host has been determined as a new species of *Quedius* by Dr. Bernhauer.

***Cantharomyces permasculus* nov. sp.**

Perithecium becoming dark amber-brown with a smoky tinge, subsymmetrical, or usually straighter externally with the inner margin somewhat convex, broadening distally; the short pale rather abruptly subconical tip usually bent outward, the pore subterminal and external, an inner lip-cell forming the small papillate rounded apex: the basal cell region not distinguished, the basal cells extending up about the ascogenic region; the stalk-cell consisting of an upper subtriangular portion, distinguished more or less abruptly by a variably developed constriction from its narrower basal portion, which may equal the distal part in length, and is somewhat obliquely inserted on the receptacle. Receptacle more or less deeply tinged with dirty amber-brown, the basal cell nearly straight and variably elongated, as is the more deeply colored subbasal cell, the base of which is modified by an annular prominence of darker color. Appendage becoming somewhat divergent and curved away from the perithecium, the axis of which coincides in general with that of the receptacle, consisting of five or six superposed cells, the basal one sterile and modified distally by an annular darker ridge similar to that at the base of the subbasal cell of the receptacle, the two to four cells immediately above it becoming compound antheridia, the uppermost or the two uppermost of which may bear a usually simple branch distally, or a pair of such branches arising from opposite sides; the several terminal cells of the appendage bearing distally usually two simple opposite branches which greatly exceed the tip of the perithecium. Perithecia $135-160 \times 40-50 \mu$, the stalk-cell $45-60 \mu$. Spores $70-75 \times 4 \mu$. Receptacle $100-155 \times 40 \mu$. Main appendage $200-275 \mu$, its longer branches 250μ . Total length to tip of perithecium $275-375 \mu$.

On a large species of *Parnus*, commonly on the elytra. Palermo, No. 1686.

This species is readily distinguished from the following by the form and color of the perithecium and its short stalk-cell, by the annular prominences of the receptacle and appendage, which are without striations, by its usually more elongate straight receptacle the axis of which coincides with that of the perithecium, not of the appendage as in *C. Bruchi*, and by its much more highly developed appendage, which may produce more antheridial cells than are known in any other of the Laboulbeniales. In its antheridial characters this species, as well as its ally, depart distinctly from the usual type of *Cantharomyces*, which possesses but one antheridium. It should not be sepa-

rated, however, and is connected with the more normal type by a species, as yet undescribed, which occurs on *Parnus* in north temperate regions. Sufficient material of both species in good condition has been examined and leaves no doubt as to their distinctness.

***Cantharomyces Platensis* nov. sp.**

Perithecium subsymmetrical, more or less tinged with amber-brown, the venter somewhat inflated above its base and more deeply suffused, the distal portion subconical tapering to a rather broad blunt apex, the basal cells small, the outer extending somewhat upward, the region not distinguished from the body of the perithecium; the stalk-cell but slightly suffused, straight erect somewhat divergent from the appendage, the axis of which coincides with that of the receptacle, as long as, or much longer than, the body of the perithecium, the distal end contrasting with and as broad or broader than the darker base of the perithecium; from which it is separated by a horizontal septum more deeply suffused and often abruptly narrower, or distinguished by a pseudo-articulation where it is inserted on the receptacle. The receptacle somewhat darker amber-brown, its basal cell irregularly triangular, geniculate, the subbasal cell usually hardly longer than broad, an annular secondary wall extending around its base and marked by very fine vertical striations. Appendage straight, erect; its basal cell concolorous with the receptacle, its base broad somewhat oblique; the whole cell broader than long, distally modified like the base of the upper cell of the receptacle, and with the same longitudinal striations; usually not more than two of the cells immediately succeeding it, squarish and modified to form antheridia, and succeeded by two or three narrower superposed cells all of which may bear a single erect straight branch; the terminal one often furcate, the branches short or sometimes extending as far as the tip of the perithecium. Perithecia $125-150 \times 32-44 \mu$, its stalk-cell $135-235 \times 25-35 \mu$. Spores $60 \times 4 \mu$. Receptacle $60-75 \times 35-40 \mu$. Main appendage $110-135 \mu$, its longest branches 200μ . Total length to tip of perithecium, about 400μ ($350-470 \mu$).

On the elytra of a smaller species of *Parnus*?, Palermo, No. 1685.

This species differs from the preceding in its long-stalked more slender perithecium, in its shorter receptacle and appendage, in the smaller number of its antheridia which are never appendiculate, and in the striation and absence of elevation which characterises its peculiar annular secondary walls. Closely allied to *C. Bruchi* Speg. which is half as large and otherwise different.

Amorphomyces Ophioglossae nov. sp.

Male individual, relatively long and slender, nearly straight, the basal and subbasal cells nearly equal, the antheridial cell as long as both combined. The subbasal cell deep reddish brown, contrasting with the hyaline basal cell and the straw-yellow slightly asymmetrical antheridium, the neck of which is about as long as the symmetrically inflated venter. Total length, including foot, $55-65 \times 5 \mu$, the antheridial cell $28-32 \times 6-7 \mu$.

Female individual. Basal cell hardly longer than broad, hyaline; its base slightly broader, contrasting with the deep red-brown base of the perithecium above it; the short deeply suffused stalk-cell, and the minute basal cells of the perithecium hardly distinguishable at maturity: the body of the perithecium pale straw-yellow, short, stout; the inner margin straight or concave; the outer strongly convex, tapering from near the middle about equally to the base and apex; the latter broad, flat or somewhat rounded, subtended externally by a reddish brown suffusion, the short tip often slightly bent outward, giving it a snout-like habit. Basal cell $8 \times 8 \mu$. Total length, including foot ($7-11 \mu$), $100-120 \times 30-35 \mu$.

On the head and tip of abdomen of *Ophioglossa* sp. Llavallo, No. 1500, and Tucuman, No. 1935, (P. Spegazzini).

A common species at Santa Catalina.

Amorphomyces rubescens nov. sp.

Male individual. Basal cell hyaline, somewhat longer than broad; subbasal cell red-brown, hardly longer than broad; antheridium relatively large, at least twice as long as the two basal cells combined, exclusive of the foot; the venter shorter than the neck, prominent distally on one side, tinged with red-brown below, slightly inflated; the neck erect, clear reddish straw-color. Total length, including foot, 65μ . The two basal cells $16-18 \times 6 \mu$. Antheridium $35-37 \times 9 \mu$, the neck $19-20 \mu$.

Female individual, relatively slender, the basal cell broader than long, smaller than the foot, hyaline, contrasting. The perithecium tinged throughout with reddish brown, the suffusion deep at and toward the basal and stalk-cells, the latter somewhat shorter than the relatively long narrow basal cells above it. The body of the perithecium straight, relatively narrow, subsymmetrically and slightly inflated, the apex broad, slightly rounded, the tip asymmetrical or

bent outward. Basal cell $7 \times 9 \mu$. Total length, including foot, $140-165 \times 25 \mu$.

On the abdomen of *Diestota* sp. Temperley, No. 2007, and Llavallol, No. 1498 on *Homalota* sp., the genera doubtfully determined by Dr. Fenyès.

Tetrandromyces nov. gen.

Male individual consisting of four superposed cells the uppermost bearing a crown of four simple antheridia.

Female individual. General structure as in *Dioicomycetes*.

Although the perithecium of the female in this genus is unlike that of any of the species of *Dioicomycetes* in external form, it corresponds to this type almost exactly in other respects, so that the genus is based upon the characters of the very peculiar male individual, in which the antheridia are not only grouped, but of a distinctly different type from those of *Dioicomycetes*, recalling those of *Synandromyces* or of some species of *Stigmatomyces*.

Tetrandromyces Brachidae nov. sp.

Male individual stout, faintly suffused with brownish olive, basal cell nearly hyaline, longer than broad, the three cells above it subequal or successively smaller, the distal cell triangular or otherwise shaped according to the point of view. Antheridial cells as large as the basal cell, the stout suberect and subsymmetrically arranged brown necks but slightly curved. Antheridia $23 \times 8 \mu$, the group 16μ wide. Total length including foot 60μ .

Female individual. Receptacle faintly yellowish, the basal cell small, about as long as broad; the subbasal cell triangular; minute but clearly distinguished; the subtending cell of the appendage narrow, oblique, the terminal cell stout, distally rounded, deep black-brown. Perithecium relatively very large, the stalk-cell rather short and stout, faintly yellowish; the basal cell and basal wall-cell regions not distinguished externally, and forming an evenly slightly inflated base, or the external basal cell forming a rounded slightly blackened prominence; the second tier or wall-cells marked by a slight inflation distally, not distinguished from the slightly asymmetrical dome-shaped region of the third tier, above which the short and abruptly narrower tip is abruptly distinguished, being subtended by the slightly elevated blackened insertion of the trichogyne; the hyaline apex slightly asymmetrical, bluntly rounded or slightly pointed, subtended

by two rounded tooth-like prominences from two adjacent wall-cells of the terminal tier. Spores, in perithecium, male $28-30 \times 4-5 \mu$, female about 40μ . Perithecia $200-235 \times 50-65 \mu$, the subterminal prominence 8μ long, the stalk-cell $60 \times 20 \mu$. Sterile appendage-cell $20 \times 12 \mu$. Total length to tip of perithecium $250-280 \mu$.

Near the tip on the superior surface of the abdomen of *Brachida Reyi* Shp., Llavallol, No. 1989.

Although in fully matured turgescient individuals the distinction between the basal cell and basal wall-cell regions becomes obliterated, the basal cells, especially the external one, may be distinctly prominent in younger or partly collapsed individuals. The ascogenic cell produces great quantities of asci and spores, unlike the forms of *Dioicomycetes*. The general form of the perithecium recalls that of the conventional "fat pig." The host has been determined for me by Dr. Fenyes.

***Dioicomycetes Formicellae* nov. sp.**

Male individual rather slender, the foot-cell slightly broadened, blackish or concolorous with the basal cell of the receptacle which is grey brown and usually separated from it by a hyaline line; basal cell a little more than twice as long as broad; the subbasal usually nearly square; the third cell shorter; the antheridial cell somewhat longer than broad; the *neck* terminal at one side, slender slightly bent. Total length including foot and neck $60-70 \mu$; basal cell $20 \times 8 \mu$.

Female individual variously curved, sometimes sigmoid, sometimes curved throughout, or the perithecium alone somewhat bent. Basal cell of the receptacle hardly longer than the foot, suffused with brown, the subbasal cell almost obsolete; the sterile appendage-cell short, rounded distally, tinged with brown. Perithecium large, yellowish brown, deeper at the tip and in the middle, strongly curved; the successive wall-cells on the convex side distinguished by slight elevations and depressions, the third wall-cell on the concave side slightly elevated; the venter somewhat inflated; tapering slightly to the coarse bluntly rounded or roughly truncate apex; the basal cell region sometimes abruptly narrower or not distinguished; the stalk-cell elongate, narrower at its base, tinged with yellowish or brownish. Spores, male $35 \times 5 \mu$, female $40-42 \times 8 \mu$. Perithecia $145-165 \times 45-50 \mu$; stalk-cell $140-180 \times 25 \mu$. Receptacle, including foot and appendage-cell, $40-65 \mu$.

On the elytra of *Formicella strangulata* Pic, Palermo, Llavallol, and Temperley, No. 1692.

Although its host was very common in the Buenos Aires region, this species was seldom met with. It is the largest species of the genus thus far described, but is otherwise without striking peculiarities.

***Dioicomycetes malleolaris* nov. sp.**

Male individual, consisting of three superposed cells and a terminal antheridium, relatively small and stout; the basal cell nearly hyaline, twice as long as broad, the subbasal cell but slightly longer than broad, the third cell much shorter than broad; the antheridium relatively large, slightly suffused, distally somewhat asymmetrical, the well developed neck terminal at the side. Length about $45 \times 7.5 \mu$.

Female individual, hammer-shaped: the basal cell of the receptacle very small, suffused with blackish brown; the subbasal minute, flat; the appendage-cell blunt-conical, faintly yellowish. Perithecium horizontal, its upper outline straight; the axis of its main body lying at right angles to that of the long, very thick-walled, slightly curved stalk-cell, the lumen of which may be nearly obliterated; the position of the basal cells and basal wall-cells so abnormal that the rounded ascigerous region projects free on one side corresponding to the free tip which projects somewhat further on the other; the whole supported by two cell-series that diverge abruptly from the end of the stalk-cell; on one side, as seen laterally, consisting of two basal cells, on the other of one basal and two squarish wall-cells; the whole including the stalk-cell more or less suffused with pale smoky yellowish brown; the tip tapering slightly to a blunt slightly asymmetrical apex. Spores $28-30 \times 3.5 \mu$. Perithecia $99-100 \times 26-32 \mu$. Stalk-cell $65-90 \times 16 \mu$. Appendage cell $15-16 \mu$. Receptacle including large foot 28μ .

On the tip of usually the right elytron of *Anthicus parvus* Pic, Palermo and Llavallol, No. 1513.

This very curious and rather rare species grows more or less appressed, the perithecium lying at right angles to the axis of the elytron. Like all the species of the genus herewith described, the spores begin to germinate normally before discharge and are twice septate when they emerge, with a well developed black foot.

***Dioicomycetes umbonatus* nov. sp.**

Male individual almost hyaline or faintly yellowish brown externally, rather slender, straight or slightly curved inward, the basal cell as

long as the portion above it; the foot small, the subbasal cell slightly larger than the cell above it, the antheridial neck usually erect, relatively long. Basal cell, including foot, $20\ \mu$. Total length to base of neck $35\times 5\ \mu$. Neck $12\ \mu$.

Female individual dirty straw-colored with a brownish tinge, the perithecium and the outer margin of the receptacle and appendage becoming somewhat darker. Basal cell of the receptacle larger than the foot, the subbasal flattened, concave below. Basal cell of the appendage hardly distinguishable, the terminal cell blunt pointed, evenly pale yellowish brown. Stalk-cell of the perithecium nearly straight, rather short and stout, deeply constricted just above its origin, about the same diameter throughout; the perithecium short, stout, strongly curved, so that the tip is horizontal, the basal cell region hardly distinguished from the body; one of the basal wall-cells on the convex side forming a conspicuous umbonate projection; the apex broad, slightly sulcate, asymmetrical. Perithecium, from the base to the horizontal edge of the tip, $70-78\times 40-43\ \mu$ (including umbo), the stalk-cell $40-42\times 12-15\ \mu$. Receptacle to tip of appendage, including foot, $42\ \mu$. Total length $135-145\ \mu$.

At the base of the elytra near the inner margin of several specimens of *Anthicus parvus* Pic; Temperley, No. 1513C.

This species is nearly related to *D. Anthici*, and to the following species from which it is most readily distinguished by the umbonate prominence resulting from the inflation of one of the basal wall-cells. A single specimen was found growing at the base of the anterior leg of one host.

***Dioicomycetes angularis* nov. sp.**

Male individual relatively short and stout, rather deeply suffused with olivaceous brown, especially externally; the foot relatively large, the basal cell slightly longer than the rest of the series, the subbasal cell hardly larger than the cell above it; the antheridial cell hardly longer than broad, the antheridial neck slightly divergent. Length, exclusive of neck, $30\times 6\ \mu$. Basal cell, including foot, $19.5\ \mu$; neck $8\ \mu$.

Female individual much as in the preceding species, the receptacle and appendage more deeply suffused. Stalk-cell of the perithecium elongate, somewhat broader distally, slightly curved distally or near the base. Perithecium rather clear pale straw-yellow, straight or very slightly curved, its axis diverging slightly from that of the stalk-cell, subtriangular, or more or less strongly angular externally owing to a

prominence corresponding to the point of separation between the basal and subbasal wall-cells, the perithecium tapering thence to the symmetrically rounded apex of the relatively narrow tip; the basal cell-region distinguished on the inner side only, by a slight indentation marking the base of the lower wall-cell. Perithecium $80-94 \times 35-42 \mu$; the stalk-cell $98-120 \times 15 \mu$. Receptacle to tip of appendage 38μ . Total length $185-125 \mu$.

On the tips of the elytra and the adjacent free portion of the abdomen of *Anthicus parvus* Pic., Temperley and Llavallol, No. 1513A.

Distinguished from *D. Anthici*, to which it is very closely allied, chiefly by the angular or triangular form of its perithecium.

Autophagomyces nov. gen.

Male individual, attached to the basal cell and foot of the female, consisting of several superposed cells and bearing terminally and laterally from one to several large flask shaped simple antheridia.

Female individual consisting of a single basal cell from which the stalk-cell of the perithecium arises distally. Ascogenic cell single, spores 1-septate.

Although five species of this type have been examined and several individuals destroyed in an attempt to isolate the spores, I have found it impossible to determine whether the male and female spores are more definitely associated than in the other unisexual genera of this type. It is therefore possible that what I have assumed to be a male individual may be an antheridial branch, which arises from the base of the basal cell of the female, although such a condition seems improbable. The relationships of this genus are evidently with *Dioicomyces*, the species of which also occur, for the most part, on Anthicidae, and with *Amorphomyces* which the female very closely resembles, except for its septate spores.

Autophagomyces Platensis nov. sp.

Male individual consisting of three or four superposed cells exclusive of the foot and bearing one to three antheridia. Total length to tip of terminal antheridium $53-60 \times 5 \mu$. Antheridia 25μ .

Female individual. Basal cell slightly broader than long, somewhat suffused with brownish below. Stalk of the perithecium short and stout, broader distally, concolorous with the hyaline or faintly yellowish perithecium; which is slightly but distinctly curved through-

out; its axis at a slight angle to that of the stalk; its outline somewhat irregular distally, owing to the presence of slight elevations and depressions which correspond to the successive tiers of wall-cells; the tip bluntly rounded, asymmetrical and not well distinguished. Perithecium $106 \times 28-32 \mu$, its stalk-cell $14-18 \times 10-14 \mu$. Basal cell $9 \times 10.5 \mu$ exclusive of foot.

On the elytra of *Tomoderus forticornis* Pic, Llavallol, No. 1982.

The base of the stalk-cell is in some specimens slightly constricted or so modified that a very small cell may appear to be separated at its base. There is no indication in this or the succeeding species of any sterile cell which might be formed from the terminal spore-segment. I am indebted to M. Pic for determining the host which he finds to be new.

Autophagomyces nigripes nov. sp.

Male individual, slender, usually consisting of three superposed cells bearing a single terminal, or rarely also a subterminal, antheridium. Total length to tip of antheridium $60-70 \times 3.5 \mu$. Antheridium 26μ .

Female individual. Basal cell relatively large, three to four times as long as broad, slightly broader distally, uniformly suffused with blackish brown, contrasting with the perfectly hyaline stalk of the perithecium; which is slightly longer, broader distally, where it is abruptly bent so as to turn the perithecium at right angles to its axis. Perithecium rather slender, its outline somewhat irregular, bent upward slightly distally; the tip large, broad, well distinguished, blunt-pointed and oblique above; or with the outer, upper lip-cell somewhat prominent. Perithecium $106 \times 26 \mu$, stalk-cell $26-28 \times 16 \mu$. Basal cell exclusive of foot, $26 \times 9 \mu$.

On the inferior surface of the abdomen of *Tomoderus forticornis* Pic.

Cryptandromyces nov. gen.

Receptacle consisting of two superposed cells, the upper bearing a solitary stalked perithecium, and an appendage formed by a simple series of superposed cells without branches; several consecutive cells of this series at first functioning as antheridial cells, from which sperm-cells appear to be discharged directly through perforations of the wall on the inner side. Perithecia normal, a single ascogenic cell present in the type.

The determination of the characters which distinguish this genus,

of which several species are known to me on related hosts, has given much difficulty; since the antheridia appear to be functional only at the moment when the trichogyne is receptive, and the openings through which the sperm cells appear to issue are soon obliterated; the antheridial cells also losing the peculiar densely granular appearance which at first distinguished them. It is only in very few specimens that I have been able to make out these perforations through which there actually seems to be a passage of sperm-cells of the usual type.

***Cryptandromyces geniculatus* nov. sp.**

Wholly hyaline. Receptacle straight, the basal cell becoming broader distally, often longer than its greatest width; the subbasal cell usually angular or subtriangular, slightly larger than the basal cells of the appendage. Appendage slightly divergent, variably developed; sometimes distally elongate and tapering, but often rather short and stout; consisting of usually three to five cells below the antheridial cells, with evenly rounded lumens, the antheridial cells above them, which may be as many as six in number, terminated by a bluntly pointed, slightly incurved cell, or the appendage in some cases becoming long slender and distally attenuated. Stalk-cell of the perithecium slender, two or three times longer than broad, often narrower subterminally; perithecium relatively large short stout, its axis at an angle, sometimes at right angles, to that of the stalk-cell, its inner margin often straight or concave, the outer strongly convex; the tip hardly distinguished, sometimes slightly bent upward, the obtuse apex minutely papillate or slightly sulcate. Spores relatively large $28 \times 3.5 \mu$. Perithecia $50-70 \times 25-30 \mu$; stalk-cell $20-26 \times 8 \mu$. Receptacle $26-35 \times 12-16 \mu$. Appendage $50 \times 9 \mu$, the more elongate 130μ .

On the elytra etc. of *Connophron* nov. sp. Temperley, No. 2001.

The material of this species is sufficiently abundant, and though I at first suspected that it was a unisexual form and that the male had been overlooked, a more careful examination shows that the individuals bearing perithecia are often paired. This host has been kindly determined for me by Col. Casey.

***Synandromyces* nov. gen.**

Receptacle consisting of two cells forming, in conjunction with the basal cell of the appendage, a compact structure in which the

subbasal cell of the receptacle occupies a central position, bordered on one side by the subbasal cell, on the other by the basal cell of the appendage, both of which thus tend to become marginal extending to or toward its base. Perithecium relatively large, with a single ascogenic cell, and five wall-cells in each row; the short stalk-cell forming a narrow isthmus between the broad base and the receptacle. The appendage, above its adherent basal cell, forming a compact free structure consisting of a flattened basal cell in some species obliquely divided, which is surmounted by two cells both bearing single simple antheridia; one surmounted by a spine, or bearing also a small cell which subtends a third antheridium, on which the lateral spine is borne; the antheridia arising close together in a characteristic group; their venters closely approximated, their stout necks distally somewhat divergent. Trichogynes bicellular above their insertions, the distal cell elongated at right angles to the basal cell on both sides, and distally beset by numerous vesicular receptive prominences.

The above diagnosis is based upon the examination of several species of this genus which are known to me from various regions, only two having been obtained in the Argentine. It is most nearly related to *Acompsomyces*.

***Synandromyces Telephani* nov. sp.**

Perithecium erect, relatively very large; becoming tinged with amber-brown, straight; the main body, including the basal cell region, symmetrically inflated, subfusiform, but often somewhat more tapering above and rounded at the base; the four cells of the first and second tiers of wall-cells separated by a corresponding number of more or less distinct prominences; a terminal portion rather abruptly distinguished from the main body, and often subtended by slight prominences, straight, narrow, isodiametric above, more deeply suffused, as a rule, than the main body, but nearly hyaline below, slightly inflated distally immediately below symmetrical hyaline truncate or slightly papillate and sulcate apex: the stalk-cell small, constricted to form a short slender isthmus, which is bent sidewise and connects laterally with the basal cells of the perithecium. Receptacle short and compact, its axis straight, the basal cell narrow, clavate above; the subbasal cell extending nearly to the foot, slightly enlarged distally, very narrow below; the basal cell of the appendage extending not quite so low as the subbasal cell, which it closely resembles, though distally more abruptly broadened to form the hori-

zontal insertion of the free appendage. Appendage compact, rounded, subsymmetrical, amber-brown; the flat basal cell undivided, about equalling the pair of cells above it, from which arise two antheridia, and, externally, a small cell bearing laterally a spinose antheridium; the necks of the antheridia lying side by side, erect and parallel, or bent slightly inward and in contact, except distally. Spores $40 \times 6 \mu$. Perithecia, including basal cells $235-310 \times 45-58 \mu$, its rostrate termination 80μ . Receptacle including foot $45-60 \times 35 \mu$. Appendage, free part including antheridia, $45-50 \times 20 \mu$.

On the elytra, prothorax and other parts of *Telephanus* sp., Temperley and Llavallol, No. 1992.

***Synandromyces geniculatus* nov. sp.**

Similar in general to the last. Perithecium relatively smaller, the main body tinged with deeper smoky brown, and lying horizontally at right angles to the axis of the receptacle; asymmetrical, the distal portion short, rostrate, tapering more or less to the short hyaline tip; which is often abruptly somewhat narrower, sometimes slightly inflated, irregularly papillate; the base inserted laterally on the short, abruptly bent, constricted stalk-cell. Receptacle as in the previous species, but relatively longer, strongly curved below. The free portion of the appendage relatively smaller, tinged with smoky brown. Spores $30 \times 5 \mu$. Perithecia $135-155 \times 45-60 \mu$, rostrate termination $45-50 \mu$. Appendage including antheridia, free portion, $30 \times 20 \mu$.

On the superior surface of the tip of the abdomen and less frequently on the adjacent tips of the elytra, often with the last, on the same host, *Telephanus* sp. Temperley and Llavallol; Nos. 1508, 1992.

This species grows, usually somewhat crowded, in the position indicated, and I have not seen it on the elytra except at the very tips, where *S. Telephani* may also occur. It can thus hardly be regarded as a variety due to its position of growth. It may be easily distinguished from *S. Telephani*, even with a hand lens, from its darker color, smaller size, and sigmoid habit.

***Stigmatomyces Anoplishii* nov. sp.**

Faintly yellowish olivaceous with conspicuous brown shades near the base of the appendage on the inner side. Perithecium relatively very large and long, the venter greatly elongated, but slightly inflated;

the neck slightly narrower, squarish or slightly inflated, subtended by a slight elevation; the tip narrower and somewhat shorter than the neck; the apex broader, terminated by four hyaline projections which taper from broad flat bases to blunt, slightly divergent tips, often symmetrical; the two upper basal cells extending upward, and not distinguished from the base of the venter; the stalk-cell very small, often shorter than broad, and bulging externally, separated from the lower basal cell by a marked constriction. Stalk-cell of the appendage narrow, lying in contact with the basal cell of the receptacle; its pointed base reaching nearly to the foot, similar to and symmetrical with the somewhat smaller subbasal cell, which lies beside the narrow enclosed prolongation of the basal cell which reaches nearly to the base of the free appendage. Basal cell of the appendage free, tinged with reddish brown on its inner side, becoming divided into two sometimes subequal cells, the outer sterile or bearing an antheridium, the subbasal cell often as large as the inner division of the basal, its wall red-brown on the inner side, bearing a single antheridium externally, which may or may not be subtended by a small cell; the cell next above smaller, subtriangular, bearing one external and two lateral antheridia, the terminal cell becoming an antheridium, the neck of which is subtended externally by a stout blunt brown spinous process; antheridia tinged with brown, the venters subtriangular, the necks abruptly distinguished, slender, curved, as long as the venters. Spores $60-65 \times 8 \mu$. Perithecia, including stalk-cell (8μ), $280-330 \times 45 \mu$. Appendage, exclusive of stalk-cell, $50-60 \times 25 \mu$ (at base): antheridia $25 \times 12 \mu$. Receptacle, including stalk-cell of appendage, $50-55 \times 26 \mu$. Total length to tip of perithecium $310-390 \mu$; to tip of appendage 130μ .

On the elytra of *Anoplishius* sp., Buenos Aires, No. 2028, La Plata, No. 1518.

A well marked species most nearly related to *S. virescens*, but differing in various essential points. The arrangement of the distal antheridia recalls that seen in *Helminthophana*.

Zeugandromyces, nov. gen.

Receptacle consisting of two superposed cells, the upper bearing a perithecium and antheridial appendage. The appendage consisting of a stalk-cell and a series of superposed cells above it, the lower basal cells clearly distinguished, or not differentiated from those above it and like them, bearing on the inner side a vertical double series of

paired antheridia, the terminal cell or cells of the series sterile, or converted directly into antheridia. Perithecium usually solitary, normal, with a well developed stalk-cell; the short trichogyne arising from the base of the prominent free portion of the trichophoric cell.

Were it not that sufficient material is available of two other species of this genus which occur on allied staphylinids, one in Borneo and the other in New England, I should hesitate to separate this type from the very large and varied genus *Stigmatomyces*. The antheridia recall those of *Idiomycetes*, in which I have described an arrangement of antheridia in three vertical rows. I have not felt satisfied, however, that this was the actual condition, and a reexamination of fresh material of this curious type may show that here also the antheridia are in two and not in three vertical rows.

The Argentine material is for the most part in poor condition, only one of the dozen or so specimens being fully matured. The perithecia do not greatly resemble those of *Stigmatomyces*, having well developed stalk-cells, while the distinction between venter, neck and tip is not well marked. The apex, in all three species, is rather characteristically shaped, flat-conical, without projections or papillae. There appear to be four ascogenic cells in all cases.

***Zeugandromyces australis* nov. sp.**

Perithecium nearly symmetrical and straight, rather elongate, rich amber-brown, paler distally; the base inflated, tapering thence gradually to the blunt conical apex; the stalk-cell stout, broader distally, faintly yellowish or hyaline, in the type bent abruptly near the base. Receptacle subtriangular, nearly symmetrical, broader distally where the septum is horizontal; subbasal cell somewhat broader, much smaller, irregular. Appendage tinged with brown, the terminal and basal cells darker, the stalk-cell subtriangular, broader externally, the basal cell more or less clearly distinguished from the five to seven cells above it, and like them bearing relatively large antheridia with long appressed upcurved necks; the terminal cell sterile, subtriangular, turned inward, externally spiniferous. Perithecium $155 \times 44 \mu$; the stalk-cell $16 \times 27 \mu$ (distally). Appendage, including stalk-cell, $44-54 \mu$. Antheridia about 20μ . Total length to tip of appendage 90μ ; to tip of perithecium 250μ .

On *Scopaeus laevis* Sharp. No. 1695, Palermo.

Found on a single specimen of the three hosts collected.

CORETHROMYCES Th.

A comparison of new material from various parts of the world has led me to the conclusion that the scope of this genus should be considerably extended. Although those forms which, like the type, occur on Cryptobia are all similar and are readily grouped in a section by themselves, owing to the uniform characters of the appendages, there are other closely related forms or groups of forms, like those on *Stilici*, as well as various undescribed species on somewhat varied hosts, that do not seem to be distinguished from the type with sufficient clearness to justify the erection of new genera for their reception. As a result of this extension, it seems desirable, moreover, to discard the genus *Rhadinomyces*, which, though sufficiently well defined in its typical conditions, varies to forms too near *Corethromyces* for proper separation. That this union might prove necessary, I have already mentioned in my second Monograph (p. 317).

A further complication in this connection has been encountered in connection with the species of *Sphaleromyces*, a type in which the antheridial characters are little known. The genus was based on *S. Lathrobii* in which the antheridia appear to be solitary, but in a majority of the species which have been described under this generic name these organs have not been seen at all, or have been but doubtfully recognized: for the reason that the material has all been obtained from dried insects, and was consequently for the most part in poor condition. Among the South American forms are several which would have been placed in this genus had it not been possible to determine from the fresh alcoholic material, that the antheridial characters were those of *Corethromyces*. The striking form for example, described below from material growing on *Pinophilus*, is undoubtedly congeneric with the two species formerly discovered on hosts of this staphyline genus, namely *S. occidentalis* and *S. indicus*; but several of the younger specimens obtained, in which the antheridia still persist, show clearly the intercalary nature of the latter. *S. Quedionuchi* was also obtained both in Chile and in the Argentine, and although the appendages here are densely tufted and small, a seriate disposition of the antheridia seems also to be present. Since, apart from the supposed antheridial distinction, there are no essential differences between *Sphaleromyces* and *Corethromyces*, the former genus must also be abandoned.

The genus *Corethromyces* thus modified, may be considered to include those forms in which a two-celled receptacle gives rise to a free

stalked perithecium, normally solitary, and to a single appendage consisting of a main axis of several superposed cells from some of which ramiferous cells are separated on the inner-side, the branches variously developed, the subbasal cell and sometimes the cell above it bearing antheridial branches; the antheridial branchlets themselves, which really form the distinctive feature of the genus, sometimes associated with sterile branchlets and bearing antheridial cells typically arranged in series of two or more superposed members, one or more of which occupy an intercalary position in the series. That even this character may be obscured, or is at least not always recognizable, is evident from an examination of the peculiar series of forms parasitic on species of *Stilicis* of which several additions are herein included. Although in more than one species of this very individual and peculiar group of forms, the seriate arrangement is well marked, instances occur in which it is rarely or perhaps never present. Thus in *Corethromyces Stilicolus*, which I formerly referred provisionally to *Stichomyces*, it is only after the examination of much additional material, that examples have been found in which the characteristic seriate arrangement occurs, the antheridia usually tending to become solitary or at least free, even when grouped: although in the light of further knowledge of this type there can be no question that it is congeneric for example with *C. Stilici* and others of this series, in which one or more of the antheridia may be intercalary.

The conclusion thus seems unavoidable that both *Rhadinomyces* and *Sphaleromyces* should no longer be maintained as distinct genera, but should be merged in *Corethromyces*, which, in addition to the species previously described under this name and the new forms described below, may be regarded as embracing the following species: ***Corethromyces cristatus*** and ***C. pallidus*** formerly placed in *Rhadinomyces*; ***C. Stilicolus*** formerly included in *Stichomyces*; ***C. Lathrobii***, ***C. occidentalis***, ***C. Indicus***, ***C. atropurpureus***, ***C. Brachyderi***, ***C. Chiriquensis***, ***C. Latonae***, ***C. obtusus***, ***C. propinquus*** and ***C. Quedionuchi*** formerly placed in *Sphaleromyces*.

That further changes in the disposition of the last mentioned forms may become necessary, when better material of the other species related to *C. Quedionuchi* has been examined, is suggested by the characters of the new genus *Mimeomyces* described above, which are exactly those of the group referred to, except for the presence of well developed compound antheridia. *C. atropurpureus*, for example, might well belong to the new genus, but in the type material, no signs of compound antheridia can be found.

Owing to the difficulties which are met with in determining the exact nature and association of the antheridia in many forms included in the genus it may be assumed that all those in which a two-celled receptacle bears distally a single perithecium on the one hand and a single main appendage on the other, bearing branches on its inner face and terminally, should be sought under *Corethromyces*, when it possesses no characters which would exclude it from the genus.

***Corethromyces Argentinus* nov. sp.**

Perithecium becoming very large, elongate, asymmetrical; the outer margin more prominent; the region of the subbasal wall-cells greatly elongated, usually distinctly suffused with purple-brown, and more or less inflated; or the whole perithecium of nearly the same diameter to the tip; which is well distinguished, blunt-conical, the apex flat, papillate, subtended by a slight elevation: the basal cell-region relatively short and compact, concolorous with the part above, the stalk-cell hyaline, but externally opaque at its base, short and about twice as long as broad. Receptacle small, the basal cell translucent, reddish, broader above than the opaque subbasal cell. Primary appendage opaque below and externally indistinguishable below from the subbasal cell of the receptacle; consisting of three superposed cells, the two lower translucent along their inner margins, their limits barely indicated externally by a slight elevation, the subbasal cell associated with two unequal cells on its inner side; the lower larger than the subbasal cell itself, inflated, and bearing paired erect branches, which produce branchlets arising near the base only, the two lowest, usually, short, opaque, contrasting, directed obliquely outward; the rest suberect, more or less suffused with purplish or nearly hyaline, coarse, straight or curved toward the perithecium, the tip of which they may exceed when unbroken, the longer branches not numerous (six or more), simple, stout, septate, tapering slightly to blunt tips: the third, terminal cell of the main axis, very small, mostly translucent, bearing distally one or two short branches. Perithecium $160\text{--}290 \times 40\text{--}55 \mu$, ascigerous part $165\text{--}270 \mu$, stalk-cell $40\text{--}60 \times 20\text{--}30 \mu$. Spores $40 \times 3.5 \mu$. Primary axis of appendage 50μ ; total length to tip of branches, longest 370μ ; larger branches 8μ in diameter. Receptacle $40 \times 8 \mu$.

On legs and abdomen of *Cryptobium* sp. Palermo, Nos. 1703-4.

This species was very common on a dark almost black *Cryptobium* with yellow legs which frequented the low ground in the park. It is

well distinguished by its very large and long perithecia, and the stout, erect and elongate simple branchlets of the appendage, certain short oblique branchlets below their origin being alone deeply suffused.

***Corethromyces Ophitis* nov. sp.**

Perithecium rather slender, translucent reddish brown, tapering but slightly to the hyaline blunt papillate tip; the basal cell well developed, hyaline, distinguished above by a slight constriction, the lower large; the stalk-cell relatively small, narrow, hyaline distally, but otherwise rich red-brown, its insertion very oblique, its suffused portion united to the basal cell of the appendage. Basal cell of the receptacle translucent brown, pale, somewhat longer than broad, slightly bent; the subbasal cell somewhat narrower below than the basal, nearly or quite opaque. Basal cell of the appendage opaque like the upper portion of the receptacle, and distinguished from it only by an external well defined rounded prominence; its second and third cells also opaque, both distinguished by a similar rounded prominence: the subbasal separated by an oblique septum from the basal and associated with two cells which occupy its whole inner surface; a lower, subtriangular, nearly equalling it in size, extending from its base for about three fourths of its length and bearing a red-brown ramiferous cell on either side; the upper much smaller and ramiferous; all the branches arising from these cells hyaline, two to four times subdichotomously branched, the ultimate branchlets longer, tapering, erect, the tips often abruptly recurved, some of them extending beyond the tip of the perithecium; the third cell of the main appendage subisodiametric, darker and abruptly constricted externally above its subtending prominence, a crest-like series of branchlets (usually broken) arising from its broad distal surface, the most external opaque or basally suffused. Perithecium $175 \times 28 \mu$ including basal cell-region (20μ). Main appendage 70μ , to tips of branches 170μ . Receptacle including foot 50μ . Total length to tip of perithecium 275μ .

On *Ophites Fauvelii*, in the Museo Nacional Collection. Collected at Palermo by Dr. J. Brèthes.

Several specimens, only one of which is well matured, have been examined. The species belongs in the section of the genus the members of which occur on *Cryptobia*. It is most nearly allied to *C. purpurascens*, but is readily distinguished by the characters of its appendage.

Corethromyces Platensis nov. sp.

Perithecium becoming translucent amber-brown; usually straight, subconical, tapering more or less from the variably swollen venter to the blunt hyaline apex; the tip more or less clearly distinguished above a slight enlargement; the basal cells rather large; the stalk-cell variably, often greatly, elongated, and tapering somewhat to its insertion. Appendage consisting primarily of three superposed cells; the basal, and sometimes also the others, more or less deeply blackened; the subbasal cell bearing distally from its inner side a pair of antheridial branches, one or both of which often become more or less highly developed through monopodial branching, forming two main axes of obliquely superposed cells; the lowest producing on the inner side fan-like antheridial branches, the ultimate branchlets consisting of two or three superposed antheridial cells; the rest bearing externally simple or branched, sterile, upcurved, appressed branchlets, the lower mostly blackened: the third cell of the primary appendage variably developed; often very small bearing distally and from its inner face, which may become outcurved and recurved, a variable number of simple bristle-like black branches, the lowest external one originally terminal (usually broken off), one of the others often greatly developed by successive monopodial branching, replacing the main appendage and consisting of from three to twelve obliquely superposed cells, each of which bears distally and externally, usually simple branchlets, for the most part short, three-celled, becoming more or less deeply suffused with black or blackish brown, upcurved, more or less closely appressed; the two or three uppermost hyaline, long, multiseptate. Basal and subbasal cells of the receptacle hyaline, small, subequal, or the subbasal larger. Perithecium, including basal cell-region, $118-125 \times 34-40 \mu$, the sporiferous part $75-100 \mu$; the stalk-cell $40-60 \times 12-20 \mu$. Spores $24 \times 2.5 \mu$. Greatest length of whole appendage $150-360 \mu$. Receptacle, including foot, $40 \times 20 \mu$. Total length to tip of perithecium $85-235 \mu$.

var. **gracilis** nov. var. Perithecium and its stalk-cell longer and more slender than in the type. Appendage divergent, slender, its primary axis consisting of three superposed cells; the basal hyaline below, blackened and slightly constricted above; the subbasal hyaline, rarely externally suffused, nearly twice as long as the basal cell, a small cell separated from its inner distal angle forming a rounded prominence from which arise right and left paired antheridial branches, wholly hyaline, spreading, several times closely branched; an-

theridial cells single or two to four of these superposed; the third cell bearing distally one to usually not more than three branches; the outer, primary branch, shorter, slender, hyaline; the others, if present, hyaline, stouter, longer, sometimes once furcate above the basal cell. Perithecium $100-156 \times 20-35 \mu$, including basal cell-region; stalk-cell $175 \times 20 \mu$. Greatest length of appendage $150-430 \mu$. Total length to tip of perithecium $180-385 \mu$.

On *Lathrobium nitidum* Er., Palermo, Temperley and Llavallol, Nos. 1687, 1688, 1998.

The type of this species occurs on various parts of the host and when its appendage is well developed is a very striking form. It is very variable in size and in the development of its appendage, and near the tips of the legs assumes a small, compact stout habit quite unlike the usual form. The variety corresponds exactly to the type formerly distinguished as *Rhadinomyces*, and occurs on the elytra, usually, or at the base of the legs. It differs from the type in its slender form, the absence of sterile branchlets on the antheridial branches, and of the black bristle-like branches of the rest of the appendage. The examination of a sufficient series, however, appears to show that the two are not specifically separable.

***Corethromyces Scopaei* nov. sp.**

Perithecium hyaline becoming faintly tinged with yellowish, relatively rather large, usually slightly asymmetrical owing to an outward curvature, tapering but slightly above the basal portion which is not prominently inflated; the tip short, conical, subsymmetrical; the small rounded papillate apex prominent; the basal cells forming a short compact group not distinguished from the base of the perithecium, the stalk-cell broad hyaline narrower below, set obliquely or sidewise on the small nearly isodiametric hyaline subbasal cell of the receptacle; the basal cell of which is about the same size but of characteristic form, rounded outward, its thick outer wall passing into and not distinguished from the broad undifferentiated hyaline or slightly purplish foot. Appendage wholly hyaline, the basal cell hardly longer than broad, the outer wall greatly thickened and in contact below with the basal cell of the receptacle; the subbasal cell somewhat narrower, the outer wall greatly thickened; the distal portion of the appendage occupied by a more or less crest-like series of hyaline branches derived from the end of the subbasal cell and from one or perhaps more terminal cells which become displaced and appear to be external,

their cavities obliterated by their thickened walls, the outer branches short, directed outward and upward, the inner (from the subbasal cell) stouter, longer, once or twice branched near the base and extending not much beyond the middle of the perithecium. Perithecium 65-75: ascigerous portion 55-70; the stalk-cell $28 \times 12 \mu$. Receptacle $20 \times 16 \mu$. Total length of appendage including branchlets 60-80 μ . Total length to tip of perithecium 95-120 μ . Spores $18 \times 2 \mu$.

On superior abdomen of *Scopaeus frater* Lynch. No. 1698 and No. 1702, Palermo.

A small pale species chiefly peculiar from the fact that no foot is distinguished from the peculiar rocker-like basal cell of the receptacle, which is usually quite hyaline. The species bears more resemblance to the *Stilicus*-inhabiting forms than to the more typical members of the genus.

***Corethromyces brunneolus* nov. sp.**

Perithecium pale reddish brown with a yellowish tinge, usually rather strongly bent inward distally; the basal cells very small not distinguished from the base of the ascigerous portion, which tapers but slightly to the blunt rounded hyaline apex; the tip not distinguished; the small basal cell-region clearly distinguished by a distinct constriction from the stalk-cell, which may be nearly straight, or strongly curved, distally broader or slightly inflated, about twice as long as broad; the stalk-cell and the appendage very asymmetrical in their relation to one another and to the small receptacle; which consists of two subequal cells, concolorous with the perithecium. Basal cell of the appendage relatively large, symmetrically inflated; the subbasal cell, at maturity and through displacement, appearing to bear directly a more or less fan-like series of short, rather stout, somewhat incurved hyaline branches, which may be once or twice branched near the base. Spores $22 \times 2.5 \mu$. Perithecia 58-62 \times 20 μ ; ascigerous portion 54-58 μ ; the stalk-cell 23-30 \times 12 μ . Receptacle $24 \times 16 \mu$ including foot. Appendage, total length including branches, longer, 100 μ ; the basal cell $20 \times 16 \mu$.

On the elytra of *Stilicus* sp., Nos. 1511 and 1512, Temperley.

This pale species appears to be very rare, only a very few specimens having been obtained. It is quite unlike any of the other forms which occur on *Stilicus* and appears to be most nearly allied to the preceding species.

Corethromyces Stilicolus nov. comb.*Stichomyces Stilicolus* Thaxter.

This species which, in view of its single free antheridia, I formerly placed provisionally in *Stichomyces*, was found frequently in the vicinity of Buenos Aires on several species of *Stilicus*, and an examination of sufficient material shows that, although the species tends to produce its antheridia singly, or free in groups, the intercalary arrangement also occurs, and there can be no doubt but that the form is congeneric with the other *Stilicus*-inhabiting species of the genus. The Argentine specimens are similar in all respects to those first obtained on *Stilicus* at Arlington, Mass.

Corethromyces pygmaeus nov. sp.

Perithecium becoming rather deeply suffused with dull reddish amber-brown, asymmetrical; the basal cell-region small and hardly distinguished, one of its cells usually bulging externally to form a distinct prominence; the ascigerous portion, usually rather abruptly inflated externally, the apex of the curvature forming a more or less well distinguished hump, the inner margin usually straight; the tip broad not distinguished, the apex truncate, subtended externally by a rather abrupt rounded prominence: stalk-cell suffused, becoming concolorous with the perithecium, usually strongly curved inward, distally broader below the base of the perithecium, from which it is distinguished by a very slight constriction, and which it nearly equals in length. Axis of foot at right angles to that of the basal cell of the receptacle, which is twice as large as the somewhat flattened subbasal cell; externally strongly concave, its inner margin convex, sometimes distally constricted on its inner side, a deeply suffused outgrowth arising from its outer upper angle; almost uniform in width above its narrower base, extending outward then upward abruptly beside the two basal cells of the appendage, sometimes bent inward near its rounded tip. Basal cell of the appendage large, nearly spherical; the subbasal cell small and surmounted by several hyaline branches, one or two of which may extend nearly to the tip of the perithecium. Perithecium $58-66 \times 24-28 \mu$: stalk-cell $40-60 \times 20 \mu$. Spores $26 \times 2.5 \mu$ (measured in perithecium). Receptacle $20 \times 12 \mu$, its outgrowth $20-30 \times 5 \mu$. Total length of appendage $30-40 \mu$. Total length to tip of perithecium 100μ .

On head and labium of *Stilicus* sp., No. 1963B, Palermo.

This small species was found only once in the park at Palermo but was also obtained on a similar host at Corral, Chile, No. 1902. It is allied to *C. Stilici*, from which it differs in the form of its perithecium and receptacle, as well as in the character of the outgrowth from the latter.

***Corethromyces sigmoideus* nov. sp.**

Axis from tip of perithecium to foot, describing an even sigmoid curve, the lower curvature much shorter. Perithecium strongly curved outward, translucent amber-brown; the basal cell-region concolorous, often slightly distinguished from the ascigerous part, the basal cells well developed and triangular; the apparent apex formed by a blunt outgrowth directly continuous with the ascigerous portion, of which it forms the bluntly rounded slightly asymmetrical termination; the apex proper having its pore lateral in position and hardly distinguishable: stalk-cell but faintly suffused, broader distally, and distinguished from the basal cell-region by a slight constriction; abruptly curved near the base, the axis of which is directly continuous with the subbasal cell of the receptacle. The latter slightly suffused, relatively large, extending on the perithecial side downward nearly to the foot, and obliquely separated from the externally deeply suffused basal cell; which is of about the same diameter throughout, including its upward extension which, lying beside the subbasal cells, extends beyond the base of the first cell of the appendage to which it is adherent, forming a rounded prominence; the upgrowth larger than the basal cell proper, and not distinguished from it. The basal cell of the appendage subelliptical, concolorous with the subbasal cell of the receptacle, its long axis nearly at right angles to that of the rest of the appendage which is curved across the stalk-cell of the perithecium; the subbasal cell small, flattened or rounded, bearing on its inner surface a smaller ramiferous cell, and distally a much larger one, often several times longer than broad, and bearing distally numerous branches; the latter more or less branched, all the branches tapering somewhat, slightly suffused below, hyaline above; the two or three longer ones curved downwards. Perithecia $70-85 \times 23-27 \mu$: stalk-cell $60 \times 18 \mu$. Receptacle including foot 40μ . Total length to tip of perithecium $135-170 \mu$. Spores $26 \times 3 \mu$.

On the superior right lateral margin of the prothorax of *Stilicus elegans* Lynch. Llavallol, No. 1994.

Closely allied to the last species, which grows in a similar position on another species of *Stilicis*; but readily distinguished by its sigmoid habit, and the different structure of its appendage and perithecium.

***Corethromyces uncigerus* nov. sp.**

Perithecium rather bright translucent reddish amber, somewhat concave and more deeply suffused on the inner side, rather strongly convex externally, the basal cells clearly defined, subtriangular in a compact group, the basal cell-region not distinguished from the ascigerous portion, which tapers distally to its peculiarly modified tip, the blackish suffusions of which extend to an opaque, hook-like prolongation which, bending at right angles, forms a lid immediately above and often partly concealing the hyaline apex: the stalk-cell nearly hyaline, variously, often greatly, elongated, curved, or often straight and erect; distally broader than the basal cell-region, from which it is thus separated by a more or less pronounced constriction. Subbasal cell of the receptacle relatively large, hyaline, subtriangular, the basal cell narrow below, smoky, extending obliquely upward to the base of the appendage where it is continued by a deeply suffused broad straight erect upgrowth, which is flattened against the appendage, and extends to or beyond its subbasal cell. Basal and subbasal cells of the appendage subisodiametric and subequal, or the basal larger and longer, the subbasal appearing to bear from its broad distal surface, a small tuft of hyaline, rather short branches and branchlets. Spores $26 \times 2.8 \mu$. Perithecia $70-85 \times 20-26 \mu$; its stalk-cell $50-125 \times 15 \mu$, distally, 20μ broad. Appendages, longer, 75μ . Receptacle, including foot, $30-40 \mu$, its outgrowth $30-60 \mu$. Total length to tip of perithecium, $150-250 \mu$.

On the posterior legs of *Stilicis elegans* Lynch, No. 1994, not uncommon at Llavallol, and easily distinguished by the peculiar tip of its perithecium which recalls that of *Chitonomyces psittacopsis* or of *C. Bullardi*.

***Corethromyces armatus* nov. sp.**

Perithecium nearly uniform dull purplish amber-brown, the basal cell-region not distinguished, or somewhat paler and very slightly narrower than the ascigerous part above; the inner margin slightly convex, the outer strongly so distally, the tip broad undifferentiated; the apex broad, flat, subtended internally by a rounded projection

and externally by a prominent conical outgrowth extending obliquely upward and outward and narrower toward its blunt, often slightly contracted, apex: the stalk-cell hyaline, shorter than the perithecium, straight or outcurved, often slightly enlarged on the inner side below the perithecium. Subbasal cell of the receptacle triangular, hyaline, the basal cell abruptly curved at right angles, wholly suffused with blackish, but not opaque; obliquely related to the subbasal cell, and continued below and just beyond the base of the appendage by an external outgrowth which is not free, even at its tip, being adherent to the basal and subbasal cells of the appendage. The basal cell of the appendage nearly hyaline, bent almost at right angles, and thus turning the rest of the appendage across the stalk-cell of the perithecium; the subbasal cell often abruptly narrower, hardly twice as long as broad, bearing distally a few external branches and a large appendiculate cell, from which arise elongate tapering branches, two or three of which may exceed the perithecium and its stalk-cell in length. Spores $32 \times 3 \mu$. Perithecium $60-70 \times 20-23 \mu$, its terminal projection, upper margin 28μ , lower 40μ ; stalk-cell $30-45 \times 12-18 \mu$. Receptacle $30-40 \mu$. Longest appendage 175μ . Total length to tip of perithecium $120-150 \mu$.

On the upper surface of the prothorax near the right margin of a species of *Stilicis*, Palermo, No. 2012, and Temperley; No. 1932, Tucuman.

This species, which was met with rarely, always occurred in exactly the same position, and is easily distinguished by its appendiculate perithecium, and the peculiar position of its appendage.

***Corethromyces rhinoceralis* nov. sp.**

Perithecium dirty pale brownish amber, a deeper patch of amber-brown involving the subterminal wall-cell on the inner side; subclavate in form, the gradual distal enlargement extending to the subterminal wall-cell; distally curved outward to the subhyaline apex which is slightly cleft, and subtended on the inner side by a long, straight, rather slender unicellular spine-like process which tapers slightly to a blunt apex and projects at right angles; basal cell-region well developed, concolorous, not distinguished from the ascigerous part, narrower below where it connects with the rather slender free, subcylindrical stalk-cell. Receptacle concolorous with the appendage and perithecium, the basal and subbasal cells of about equal length, the subbasal cell half as broad as the basal, except immediately above the

latter, and obliquely separated by a curved septum from the basal cell of the appendage which lies beside it and extends but slightly above it: the rest of the appendage rather slender, rigid, its axis of four or five successively smaller superposed cells, each bearing distally, from the inner angle, a short hyaline branch, seldom persistent and producing large bottle shaped antheridia singly or in series of two, one terminal and the other intercalary. Spores (in perithecium) about $45 \times 6 \mu$. Perithecium, including basal cell-region, $240-250 \times 46 \mu$: the subterminal spine $80-90 \mu \times 8-10 \mu$ near base; the stalk-cell $60 \times 15 \mu$. Receptacle including foot 70μ . Free portion of appendage 135μ .

On the inferior surface of the abdomen of *Pinophilus suffusus* Er., No. 1977, Llavallol.

Closely allied to *C. Indicus*, from which it differs chiefly in the clavate form of the perithecium, and in the highly developed spine which springs from a projection of one of the subterminal wall-cells. The species appears to be very rare, for although very many specimens of its host were obtained it was found in only two instances.

***Corethromyces macropus* nov. sp.**

Nearly hyaline. Perithecium asymmetrical; the outer margin convex, the inner straight below the incurved tip; the basal cell-region not distinguished from the slightly and symmetrically inflated body, which tapers slightly to the undifferentiated tip; the latter slightly suffused with brownish, and rather abruptly bent inward, one of its lateral wall-cells deeply suffused with brown, and forming a free truncate projection immediately beside the flat-conical, hyaline, slightly geniculate apex: stalk-cell small, not distinguished from the basal cells, one of which lies beside it extending nearly to its base. Receptacle relatively large more or less strongly curved, the foot large and long, tapering from a large bulbous portion to its pointed extremity: the basal cell more or less deeply suffused with smoky brown, paler above, rectangular, somewhat longer than broad, distinguished by a horizontal septum from the small subbasal cell, from which the perithecium and appendage arise asymmetrically. The appendage consisting of about five superposed cells; rigid, straight, divergent, nearly hyaline; the basal and subbasal cells not appendiculate, the rest bearing short branches distally on the inner side. Perithecia, including stalk- and basal cells, $100-110 \times 25 \mu$. Receptacle, including foot, $55 \times 18 \mu$. Appendage $50-55 \times 8-10 \mu$. Total length to tip of perithecium $150-180 \mu$. Spores 30μ .

On *Heterothops* nov. sp., No. 1987, Llavallol.

This curious form is most clearly distinguished by the peculiar conformation of the tip of the perithecium and its relatively large receptacle and foot; but is included only provisionally in the present genus owing to the fact that the antheridia are not distinguishable in any of the specimens. The host has been determined as a new species by Dr. Bernhauer.

***Corethromyces rostratus* nov. sp.**

Perithecium tinged with pale brownish, long, slender, erect and straight, symmetrical; the basal cell-region distinct from the more or less inflated basal ascigerous part; the mid-region sometimes rather abruptly narrower and elongate; the tip not distinguished, symmetrical; the apex narrow subsymmetrical, hyaline, abruptly papillate: stalk-cell small, concolorous, rather broader than long. Receptacle externally prominent below the insertion of the appendage, the basal cell large, subtriangular, suffused with smoky brown, externally opaque, its broad distal surface obliquely separated from the small flattish subbasal cell. Appendage somewhat divergent, consisting of five or six superposed cells; the basal nearly hyaline; those above it more distinctly suffused, and each bearing a branch from its distal inner angle; the branches once to several times divided, the subbasal cell of the lowest branch, in conjunction with the bases of its two or three branchlets, rather characteristically inflated; the ultimate branchlets slender, hyaline, cylindrical, associated with usually single (?) antheridia. Perithecia, above basal cells, $120-135 \times 20-22 \mu$: the stalk-cell $6 \times 8 \mu$. Receptacle $55-58 \mu$. Spores $30 \times 3 \mu$. Appendage $95-100 \times 12-14 \mu$ its longest branches 155μ . Total length to tip of perithecium $200-230 \mu$.

On various parts, usually the abdomen of *Heterothops* sp., Temperley, No. 2000, Llavallol, Nos. 1985 and 1987.

It seems difficult to obtain this species in very perfect condition, and though I have examined material from a number of different individuals, I have been unable, even in the younger specimens, to determine the exact nature of the antheridia which appear to be solitary near the bases of the lower branches of the appendage. It is possible that I have mistaken short branches for these organs, and in any case the reference of the form to *Corethromyces* as above emended must be considered provisional.

A well marked variety was also found having a hyaline obconical

basal cell, separated by a straight horizontal septum from the small triangular cell above, its perithecium and appendage closely approximated.

***Stichomyces Catalinae* nov. sp.**

Perithecium rather stout, nearly hyaline; the basal cell-region well developed, slightly broader than the base of the ascigerous region; the latter becoming gradually and but slightly broader to the broadly conical, symmetrical, or slightly bent, distal region, from which it is distinguished by a slight double corrugation on one or both sides; the apex small, often bent sidewise, rather abruptly distinguished, symmetrical, rounded, hyaline and subtended by dark brown suffusions which often appear like paired rings; the stalk-cell well distinguished, broader than long, distally bent abruptly upward from its insertion which is lateral, from the distal end of the subbasal cell of the receptacle. Receptacle deeply suffused with brown, except its narrow hyaline base just above the small foot; the basal cell broader distally, hardly twice as long as the somewhat broader subbasal cell. The appendage consisting of an axis of four superposed cells not distinguished from the receptacle, and concolorous with it; the subbasal cell bearing from its upper inner angle a group of hyaline branches, which reach to or beyond the tip of the perithecium; the terminal cell smaller, hyaline, and bearing a few hyaline branches. Spores $20 \times 1.5 \mu$ (measured in perithecium). Perithecium $50-60 \times 15-20 \mu$. Receptacle, including foot, $30-55 \times 9-12 \mu$. Main axis of appendage $30-35 \times 12 \mu$; total length to tip of longest branchlets, 75μ . Total length to tip of perithecium, $90-125 \mu$.

On *Conosoma testaceum* Lat., No. 1984, Llavallol.

The branches of the appendage in this species are usually badly broken, and even in those which are still intact, are so beset by masses of bacteria, that it has not been possible to make out the antheridia with certainty, although they appear to arise in small groups somewhat as in *S. Conosomae*. The character of the perithecium and of its apex, and the dark continuous axis formed by the receptacle and main appendage, are characteristic of the species, although a few specimens were obtained that are smaller and in which the successive cells of the receptacle and appendage are less evenly continuous.

Laboulbenia Lathropini nov. sp.

Receptacle relatively stout and small, cells I and II faintly suffused, subequal in length; the latter broader, sometimes longer; the rest of the receptacle and the perithecium deeply suffused with dirty olivaceous brown; cells III and IV subequal; the upper angle of cell V free between the perithecium and the slightly oblique insertion-cell, which is thick but rather small. The simple outer appendage enormously elongated, distally hyaline, the cells several times longer than broad, all similar; the first three or four somewhat shorter than the rest; the basal cell of the inner appendage very small, bearing an antheridial branch consisting of one to two small cells, terminated by one to two antheridia, one of which may be replaced by a long simple sterile branch. Perithecium relatively large, not wholly free, slightly and evenly inflated; the wall-cells strongly spiral and marked by fine irregularly parallel lines; the tip deeply suffused, the lip-edges hyaline, subequal, the apex sulcate and turned strongly inward. Spores $75 \times 8 \mu$. Perithecium $150-175 \times 45-50 \mu$. Receptacle $120-155 \mu$. Longest appendage $900 \times 16 \mu$ at base. Total length to tip of perithecium $900 \times 16 \mu$.

On the upper surface of the abdomen of *Lathropinus fulvipes* Er., No. 1975, Llavallo.

A species of the simpler "polyphaga" type, most nearly allied to *L. Oedodactyli*, and distinguished by its enormously elongated outer appendage and spirally twisted, longitudinally striate wall-cells. The host was found rarely in decaying wood.

LABOULBENIA FUNEREA Speg.

This form which is very abundant on species of *Anaedes* in the vicinity of Buenos Aires, especially in the woods at Santa Catalina, is, in my opinion, best regarded as a variety of *L. polyphaga*. It is characterized by its small size, averaging about 175μ to the tip of the perithecium, the receptacle being usually rather short, about $95-100 \mu$, although cell II is occasionally considerably enlarged. Cell I is always hyaline, cell II often so, though frequently involved by the characteristic blackish olive-brown suffusion of the rest of the receptacle, which is concolorous with the perithecium except for a small hyaline patch usually present below the insertion-cell. The outer appendage is usually furcate above its subbasal cell, the two branches distally hyaline and tapering; the small basal

cell of the inner appendage bearing one or two short branches, the lower cells of which bear a few antheridia. The perithecium is straight, very slightly inflated, the tip clearly distinguished, deeply blackened, the lips hyaline, turned slightly outward, separated by a slight apiculus.

***Laboulbenia hemipteralis* nov. sp.**

Receptacle rather short and stout, the basal and subbasal cells subequal in length; the former hyaline; the rest of the receptacle more or less deeply tinged with olivaceous, especially the relatively broad distal portion; cell VI (stalk-cell) small, triangular, its oblique contact with cell II not extending to the end of the latter; the basal cells of the perithecium obsolete; the ascigerous cavity lying immediately above the stalk-cell. Perithecium olivaceous, tapering, its distal half, only, free; the tip conspicuously blackened and bent slightly inward; the apex subsymmetrically rounded, or slightly pointed, concolorous with the tip; the pore turned inward. Insertion-cell relatively very broad, lying somewhat higher than the middle of the perithecium, the basal cell of the outer appendage bearing a single branch, consisting of a single cell externally suffused at its base, bent inward slightly, producing four or five closely successive branchlets externally, the lowest of which is distinguished by a thin darkened septum and bears about four secondary simple branchlets in a similar fashion, the lowest of which is more slender and suffused especially at its base, usually projecting subhorizontally, the others hyaline; the remaining primary branchlets hyaline, simple or furcate, often spirally curved above: the basal cell of the inner appendage giving rise normally to an outer and an inner and two lateral branches, consisting of single short cells, each bearing a large terminal brown antheridium, which may be replaced by a sterile branch bearing hyaline branchlets like those above the base of the outer appendage. Perithecia $66 \times 20-23 \mu$. Spores $22 \times 2.6 \mu$ (in perithecia). Receptacle $85 \times 23 \mu$. Appendages to tips of longest branchlets, 105μ . Total length to tip of perithecium $100-120 \mu$.

On the legs and inferior surface of *Velia Platensis* Berg., Palermo, near Belgrano, No. 1951 along the margin of a pool. (Van Duzee det.)

This very clearly distinguished form which was found with the following species, is the first of the genus thus far reported on Hemiptera. The material is abundant and in good condition.

Laboulbenia Veliae nov. sp.

Receptacle dirty olivaceous, concolorous with the perithecium, cells I and II forming a stout elongate stalk about five times as long as the scarcely broader distal portion. The insertion-cell broad and thick, deep reddish, not quite opaque; the outer and inner basal cells of the appendages subequal; the appendages but faintly suffused or subhyaline, once or twice somewhat irregularly branched; the branches divergent, the two or three lowest cells short, slightly inflated, distinguished by dark thin septa. Perithecium not wholly free, narrow, geniculate below the tip, the pore lying laterally on the inner side in the angle formed between the small rounded hyaline prominent inner lips and the greatly enlarged outer lip-cells, which are deeply suffused externally on the side above the pore, above and beyond which they form a characteristic large blunt erect slightly bent process, which terminates the perithecium. Spores $50 \times 7 \mu$. Perithecia $125-130 \times 24 \mu$. Receptacle $235-260 \mu$; cells I and II $200 \times 18 \mu$. Appendages including longest branchlets, 200μ . Total length to tip of perithecium, largest, 350μ .

On the superior surface of the thorax of *Velia Platensis* Berg., No. 1951, Palermo near Belgrano.

A very distinct species, remotely resembling *L. ceratophora* and its allies. A small group of adult specimens was found on the same individual with *L. hemipteralis*.

Laboulbenia Lacticae nov. sp.

Receptacle hyaline, becoming very faintly tinged with brownish yellow; cells I and II subequal, nearly as broad as the much reduced distal portion; cells III, IV and VI not greatly different in size, the insertion-cell occupying but half of the distal surface of cell IV, the rounded outer half of which is free externally. Basal cells of the appendage involved by the opacity of the insertion-cell, and indistinguishable; the outer bearing a compact group of six or eight suberect branches in two radial rows, or more irregularly placed, which bear short branchlets on their inner sides, and consist of two parts; a basal, seated on an almost hyaline cell and composed of rather short cells deeply suffused with blackish brown and constricted at the septa, and a distal portion suffused only at its base, above which it is quite hyaline rigid and tapering; basal cell of the inner appendage bearing one or two short branches on which one or two antheridia

may be produced, the latter sometimes occurring on the inner branches of the outer appendage also. Perithecium wholly free, concolorous with the receptacle, narrow, but slightly inflated, the tip nearly as broad as the body, and clearly distinguished by blackish suffusions; the lip-cells large rounded and bent slightly inward. Spores $45 \times 3.5 \mu$. Perithecium $90-100 \times 24-28 \mu$. Receptacle $80 \times 15-155 \times 22 \mu$. Longer appendages $135-150 \mu$. Total length to tip of perithecium $175-280 \mu$.

On the tips of the elytra, wings and abdomen of *Lactica varicornis* Jac. or a closely allied species. Palermo, No. 1462.

LABOULBENIA BLECHRI Spegazzini.

Receptacle slender, hyaline, the basal cell not symmetrically adjusted to the subbasal, which is slightly prominent above it on the posterior side, while the basal bulges below the subbasal on the anterior side; the subbasal somewhat longer than the basal, hardly broader; cells III, IV and VI subequal and subsodiametric, cell V very small. The insertion-cell, black, rather thin, not very broad; the outer appendage erect, simple, its three lower cells rather deeply tinged with olivaceous, especially externally, subequal, each somewhat broader distally and thus rather abruptly distinguished from one another; the rest of the appendage quite hyaline, tapering slightly: basal cell of the inner appendage much smaller than that of the outer, producing the usual branch on either side, each once or twice branched; the whole forming a group of four to six branchlets olivaceous below, which are relatively very stout, short, bent inward or across the perithecium, the longest extending just above its tip, the lower circinate distally. Perithecium colorless, straight, its axis somewhat divergent from that of the slender receptacle, the basal cell-region forming an external rounded prominence, the junction of the basal and subbasal wall-cells also prominent; the tip, rather stout, subtended by a slight external prominence, the apex broad, the hyaline lips outwardly oblique, subtended by an olivaceous patch on the inner side. Spores $35 \times 3 \mu$. Perithecium $62-70 \times 20-22 \mu$. Receptacle $80-100 \mu$. Appendages, longer, inner 55μ , outer 110μ . Total length to tip of perithecium 140μ .

On *Blechrus* sp., at the tips of the elytra. Llavallol, No. 1979.

A single specimen of the host was found bearing this species which is most readily distinguished by its relatively very large incurved inner appendages. The perithecium may become suffused with age, but in the specimens examined it is quite hyaline, although they are sufficiently mature to have produced spores.

Laboulbenia Monocrepidii nov. sp.

Cells I and II hyaline or faintly olivaceous, narrow, cell II rather abruptly broader distally, and obliquely separated from cell III by an incurved partition; the distal portion of the receptacle deeply suffused with olive-brown, deeper externally below the very thick dark insertion-cell; cell V paler. Basal cells of the appendage suffused, subequal, each bearing a short single simple rarely once-branched erect similar appendage, the basal cell of which is subhyaline or more faintly suffused, and distinguished above and below by a constriction and by a blackened septum, the rest of the appendage short hyaline, tapering to a blunt point, the inner appendage single short simple, replacing a single small short antheridium found in younger specimens. Perithecium about three quarters free, deeply tinged throughout with olive-brown, slightly inflated; the tip long, not abruptly distinguished, suffused with blackish, the black shades extending downward separated by pale areas; the lips asymmetrical, the edges irregular, outwardly oblique, hyaline. Spores $75 \times 4.5 \mu$. Perithecia $120-135 \times 40-45 \mu$. Receptacle $150-225 \mu$. Longest appendage $80-110 \mu$. Total length to tip of perithecium $250-325 \mu$.

On the elytra etc. of *Monocrepidius* sp., Palermo, No. 1683 and also at Llavallol.

A clearly distinguished species, the first as yet recorded on a member of this family (Elateridae).

Laboulbenia fuscata nov. sp.

Receptacle tapering evenly to the small foot, dirty olive brown, cells I and II paler, cell IV externally rounded and prominent below the rather broad insertion-cell which is but little darker than the cells below it. Basal cell of the outer appendage roundish or bell shaped, deep reddish brown, hardly larger than the inner, the appendage externally blackened and curved abruptly outward above it, short, separated by an opaque septum from its deeply suffused reddish brown basal cell, and bearing two to three suberect or incurved short branches; the inner basal cell bearing two deep reddish brown, somewhat bell-shaped cells, terminated by a single short erect usually simple appendage. Perithecium free, except at the very base, dark translucent yellowish olive, subsymmetrical, curved slightly outward, twisted one quarter so that the tip is viewed at right angles to its normal position; the tip large, characteristically and slightly inflated,

especially its inner basal half, externally margined with black, the apex nearly opaque, broad, symmetrically bilobed. Spores copious $75 \times 4.5 \mu$. Perithecium $156 \times 48-55 \mu$. Receptacle $200 \times 75 \mu$. Total length to tip of perithecium $330-350 \mu$. Longest appendages 120μ .

On legs of a small species of *Pterostichus* taken on flats outside the docks at Buenos Aires, No. 1968.

A peculiar form, of which four fully developed specimens were obtained, which does not appear to be nearly allied to any of the described species.

***Laboulbenia granulosa* nov. sp.**

Receptacle becoming more or less uniformly tinged with dark olive, the suffused area coarsely granular-punctate, the dark granulation involving the distal portion of the otherwise hyaline basal cell; cell II narrow, very obliquely separated from cell VI which extends nearly to its base, cells III and IV subequal. Insertion-cell broad and thick; cell IV protruding but slightly below it; basal cell of the outer appendage sometimes twice as large as that of the inner, both becoming concolorous with the receptacle; the outer appendage usually furcate above its subbasal cell; the basal cell of the inner appendage producing a branch on either side, usually once branched; the branchlets of both appendages hyaline, eventually curved inward across and beyond the terminal portion of the perithecium. Perithecium evenly olivaceous, a few coarse scattered maculations on the basal third; somewhat inflated in the middle, the tip not abruptly distinguished, rather stout and broad; the apex asymmetrical; the outer lip-cell somewhat more prominent, the inner subtended by a blackish suffusion. Perithecium $110 \times 40 \mu$. Receptacle $135 \times 40 \mu$. Total length 215μ .

On the legs of *Argutor Bonariense* Dej. (thus named in the Museo Nacional) No. 1460, Isla de Santiago, near La Plata.

This species bears a distant resemblance to *L. scelophila*, but is distinguished by its more slender abruptly curved appendages and the blackish powdery granulation of its suffused portions. The host appears to be the same which is called by Spegazzini *Argutoridius oblitus*, which Mr. Henshaw informs me should be placed in *Pterostichus*.

Laboulbenia subinflata nov. sp.

Receptacle rather long but variable, cells III and IV becoming olivaceous, the rest pale dull yellowish, the upper half or more of cell II characteristically swollen, broader than the receptacle above it, from which it is separated by a distinct indentation on one or both sides; cell III relatively large, sometimes twice as large as cell IV, the outer half of which lies external to the insertion-cell, below which it is thus prominent and obliquely rounded outward. The insertion-cell black, rather thick and narrow; the basal cell of the outer appendage several times as large as that of the inner, the subbasal cell similar and subequal, both becoming olivaceous; the latter bearing regularly two parallel branches distally, the outer usually shorter; the whole appendage erect or slightly divergent and reaching a short distance beyond the tip of the perithecium: the small basal cell of the inner appendage bearing a short erect branch on either side, from the base of which arises a unicellular antheridial branchlet terminated by two to three antheridia. Perithecium relatively small, the lower wall-cells and the upper basal cells becoming tinged with olive, distinguished from the part above by a more or less pronounced elevation, later obliterated, from which a darker area of olive-brown extends horizontally across the perithecium, which above it is pale amber-brown; the tip relatively narrow, abruptly distinguished externally above a conspicuous rounded prominence, its concave external margin broadly blackened; the lips outwardly oblique, coarse, the inner more prominent, rounded, subtended by a blackish patch. Spores $55 \times 5 \mu$. Perithecium $175-185 \times 45-50 \mu$. Receptacle $310-415 \times 62-78 \mu$; largest subbasal cell $187 \times 75 \mu$. Appendages 200μ , longest 215μ . Total length to tip of perithecium $350-585 \mu$.

On the left margin of the prothorax, superior, of "*Argutor Bonariensis* Dej."; Buenos Aires, Nos. 1512 and 1962; Llavallol, No. 2032.

This species was found on a number of individuals of its host, and always in exactly the same position, sometimes in company with all of the six other species, including *L. polyphaga*, which occur on this host, from which it may be easily distinguished by its perithecium, appendages and inflated subbasal cell.

Laboulbenia Bonariensis nov. sp.

Large, long, slender, and as a rule evenly curved from base to apex. Receptacle becoming more or less evenly suffused with olive brown,

the base of cell I hyaline, the distal part more deeply suffused than the rest of the receptacle; cell II somewhat longer anteriorly than cell I, cell IV somewhat obliquely prominent below the insertion-cell, which is relatively narrow and thick: appendages slender, the basal cell of the outer very slightly longer than broad, somewhat larger than that of the inner, becoming deeply suffused with age, bearing a single slightly divergent branch, the slightly smaller basal cell of which bears two to three branchlets distally, its deep external suffusion continuous with that of its short slender outer branchlet, its one or two inner branchlets radially placed, simple hyaline erect, extending to or above the tip of the perithecium: basal cell of the inner appendage bearing one or two branches, sometimes once branched, hyaline, erect, similar to the adjacent branches of the outer appendage. Perithecium bent inward, becoming rich brown with a slight olivaceous tinge when fully mature; the base, above the basal cells, sometimes rather abruptly distinguished and slightly paler; the tip rather long, broad, hardly distinguished, sometimes bent very slightly outward; the apex broad, blunt, often symmetrically rounded; or the lips slightly prominent, subhyaline and subtended by a deeper shade on the inner side. Spores $70 \times 6 \mu$. Perithecium 135×35 to $210 \times 55 \mu$, average $175 \times 42 \mu$. Receptacle $235-335 \times 50-70 \mu$. Longest appendage 200μ . Total length to tip of perithecium $300-500 \mu$.

On "*Argutor Bonariense* Dej." Usually growing in a single group not far from the base of the outer margin of the left elytron, but occurring less frequently on the legs and inferior surface. Llavallol, No. 2032; Temperley, No. 1512; Buenos Aires, No. 1962; La Plata, No. 1460.

A species usually distinguishable with a hand lens from its large size and localized position on the left elytron. In one group of individuals examined there is some variation from the type described, cell I being short, cell II much enlarged and separated from cell VI by a conspicuous indentation, so that the receptacle is subgeniculate; the tip is more prominently distinguished and bent inward, the lips broader and more prominent. The variations in size are considerable and almost straight individuals of the normal type sometimes occur.

***Laboulbenia lutescens* nov. sp.**

"*Laboulbenia fumosa*," Spegazzini, Fungi Chilenses, p. 135.

Receptacle more or less deeply, though not uniformly suffused with clear olive brown, especially along the margin below the appendages, the basal cell small, hyaline below; cell II but slightly longer; cells

II and VI subequal, the latter somewhat shorter; cell IV abruptly prominent externally below the insertion-cell. Insertion-cell deeply suffused, rather thick; the basal cell of the outer appendage somewhat smaller than that of the inner, externally opaque, bearing distally two branches radially placed; the outer branch strongly divergent to horizontal or even slightly recurved, almost wholly opaque, its opacity continuous with that of the basal cell; bearing above several subhyaline branchlets; the inner branch erect, once or twice branched, its basal cell and the outer primary branchlet arising from it, more or less deeply suffused externally: basal cell of the inner appendage slightly longer than that of the outer, bearing two erect slightly olivaceous branches, one on either side, which are usually twice branched; the ultimate branchlets hyaline, rigid, bluntly tipped, the longest scarcely reaching the tip of the perithecium. Body of the perithecium slightly and more or less evenly inflated, broadest in the middle, rich amber yellow, sometimes becoming tinged with olivaceous; usually, but not invariably, twisted one quarter, so that the tip is viewed at right angles to the normal position; the tip more or less deeply suffused with blackish olive, short, rather abruptly distinguished, bent distinctly inward, its outer margin nearly straight, its inner strongly indented, the apex usually broad, horizontal, symmetrically bilobed; the lip-edges hyaline and evenly rounded; if the twist is absent, oblique, or sometimes four-lobed if the twist is one eighth. Spores $78 \times 7 \mu$, Perithecium $125-145 \times 35-40 \mu$. Receptacle $100-135 \mu$. Total length to tip of perithecium $225-275 \mu$, average 250μ .

On the outer margin of the left elytron of "*Argutor Bonariense* Dej." Buenos Aires, No. 1962, No. 1431 in Museo Nacional; also at Temperley and Llavallol.

This species does not appear to be nearly allied to *L. fumosa* to which it has been referred by Spegazzini who found it on "*Argutoridius*" at Santiago, Chile. It was found by me on the same host at the Baños de Apoquindo, near Santiago.

***Laboulbenia asperata* nov. sp.**

Hyaline becoming pale straw- or amber-yellow. Receptacle normal, the subbasal cell variably elongated, rarely minutely corrugated; cell V parallel to cell IV and slightly longer. Appendages hyaline, the insertion-cell transparent, faintly suffused with reddish, the basal cell of the outer appendage usually distinctly larger than the inner, broader than long and forming a more or less prominent

rounded or angular external projection variably developed below the usually solitary elongate branch or simple appendage which arises from it and is erect, sometimes divergent or even pendent, especially if it is associated with a second branch within; the basal cell of this appendage, sometimes its subbasal cell, inflated, broader than long, more or less deeply constricted at the very faintly suffused septa: the basal cell of the inner appendage producing two branches which may be simple or once branched at the base, usually slightly exceeding the tip of the perithecium, and sometimes elongate like the outer appendage. Perithecium subhyaline to yellowish, rather narrow, slightly divergent distally, the external basal wall-cell more or less conspicuously roughened by fine transverse ridges; the tip hardly distinguished, tapering very slightly; the apex broad, subtended on the inner side by a small faintly suffused patch, the lips evenly oblique outward, hardly prominent. Perithecia $110 \times 40 \mu$. Longest appendage 250μ . Receptacle $100-235 \mu$. Total length to tip of perithecium, $150-350 \mu$, average 235μ .

On the elytra etc. of *Tachys* sp., Palermo, No. 1696.

This species is nearly allied to *L. Tachys* and to *L. marina* Picard, but differs from both in the characters of its appendages and insertion-cell, as well as by the characteristic external roughening of the outer basal wall-cell of the perithecium.

***Laboulbenia australis* nov. sp.**

Receptacle indistinctly punctate, cells I and II becoming dirty yellowish, often contrasting with the frequently deeply suffused yellow-brown distal portion which often becomes somewhat olivaceous. Insertion-cell horizontal, rather thick; the appendages rather copiously branched the branches subparallel in a rather compact group, usually erect or the whole bent slightly toward the perithecium; the basal cell of the outer appendage twice as long as the inner, not distinguished from the cells above it, the appendage once or twice branched or sometimes simple: the basal cell of the inner appendage producing an erect branch on either side each once or twice branched, the antheridia arising singly or two together even from the third cells of the branches, so that they may lie opposite the tip of the mature perithecium. Perithecium free, except at its very base, usually straight, or concave externally and strongly convex inwardly, especially immediately below the tip, so that the whole perithecium is bent strongly outward distally in a characteristic manner; the tip

short, abruptly distinguished, laterally deeply suffused especially externally; the lips rounded, more or less symmetrically, translucent or hyaline. Spores $45 \times 3.5 \mu$. Perithecia $98 \times 35 \mu$. Appendages to tips of longest branches 155μ . Receptacle $125-275 \mu$. Total length to tip of perithecium average $250-275 \mu$ ($150-300 \mu$).

On all parts of a species of *Apenes*. Tucuman, No. 1940 (P. Spegazzini).

This species of which abundant material is available, is somewhat similar to *L. Oopteri*, but differs in its characteristically and more strongly curved perithecium, and in the absence of dark septa in the outer appendage, the basal cell of which is never as highly developed, in the present species. Individuals growing on the legs are smaller, stouter and darker.

***Laboulbenia flexata* nov. sp.**

Yellowish to hyaline, with variable brown shades; the perithecium becoming uniformly rich translucent brown. Form rather slender, evenly curved throughout, but more or less distinctly geniculate between the basal and subbasal cells of the receptacle which are rather long and about equal in dimensions. Cells IV and V somewhat enlarged and divergent, carrying the very broad and thick black insertion-cell free from the base of the perithecium. Appendage consisting of an outer and an inner branch of the type of *L. Texana*; the outer stout, or curved somewhat away from the inner, and consisting of four to six large subequal cells, each bearing a simple branchlet like those of *L. Texana*, subtended by a small cell from which it is separated by a deeply blackened septum; the small terminal cell of the series bearing two such branchlets: the inner appendage consisting of two branches which spring from a common basal cell; one of them unicellular and terminated by a single antheridium, the other strongly curved across the perithecium, and consisting of five or six small superposed cells, each bearing a simple branchlet similar to those of the outer appendage. Perithecium rather narrow, curved toward the appendage, its middle opposite the insertion-cell; its tip abruptly distinguished, narrow, prominent, opaque, contrasting abruptly with the hyaline symmetrically rounded apex. Perithecium $155-200 \times 48-55 \mu$. Receptacle $275-390 \mu$. Outer appendage $135-155 \times 40 \mu$ at base, longest $200 \times 50 \mu$; inner appendage $50-60 \times 12 \mu$; longest branchlets $120-140 \mu$.

On the inferior left margin of the prothorax of *Brachinus* sp., No.

1457, Isla de Santiago, La Plata; No. 1426 in Museo Nacional, no locality; No. 2030, La Plata (P. Spegazzini).

The present species adds still another form to the well marked series of the *L. Texana* group, all of which occur on the inferior surface or legs of species of *Brachinus*, and which I have hitherto preferred to treat as varieties of *L. Texana*. Sufficient material of several of these forms which is now available, indicates clearly that the members of this series are better regarded as species, which correspond among themselves in a fashion very similar to that which may be seen in the much more numerous species which have developed on the allied host-genus *Galerita* in the Western Hemisphere. Among these forms ***Laboulbenia Oaxacana***, alone, has not been found in the Argentine region, although ***Laboulbenia pendula*** is known only from Montevideo, and but a single specimen of what appears to be the typical *L. Texana* was obtained at the Isla de Santiago.

Of the other members of the group the following were obtained.

Laboulbenia incurvata exactly resembling the types, was found on a large *Brachinus* in the Museo Nacional, No. 1427, labeled "Argentine"; on several specimens of a *Brachinus* taken on the Isla de Santiago, La Plata, and on a *Brachinus* collected in Tucuman by P. Spegazzini.

Laboulbenia retusa, which was first found in Florida, was again obtained on *Brachinus* from the Isla de Santiago near La Plata, No. 1457, as well as from Tucuman No. 1939.

Laboulbenia tibialis, also first obtained in Florida, occurred in good condition on a *Brachinus* collected by P. Spegazzini in Tucuman, No. 1939. All the seven species of this group occupy more or less definite positions on the host, and none of them ever occur, as far as has been observed, on the upper surface; although *L. Brachini*, which is often associated with them, may be found in any position.

***Laboulbenia inflecta* nov. sp.**

Basal cell of the receptacle hyaline or faintly suffused above, much longer than broad, the receptacle above it uniformly dull yellowish olivaceous and compact, the cells not greatly different in size; cell III extending upward sometimes almost to the insertion-cell. Insertion-cell somewhat oblique, thick, deeply suffused; outer and inner basal cells of the appendage subequal, the outer externally rounded and suffused, the axis of the outer appendage consisting of about five obliquely placed cells; those above the basal cell small, their branches

stout, relatively short, divergent; the main axis of the inner appendage consisting of five cells, the lower bearing relatively small stalk-cells terminated by single large stout antheridia. Stalk of perithecium hyaline, contrasting, very short, constricted; its axis coincident with that of the perithecium and bent inward at a slight but definite angle to the axis of the receptacle; the body of the perithecium translucent, nearly symmetrical, becoming deeply suffused with clear, slightly reddish olive-brown, subsymmetrically inflated throughout, the tip rather narrow, abruptly distinguished, more deeply suffused; the apex hyaline or becoming suffused, nearly symmetrically rounded or slightly irregular. Perithecium above stalk $110-128 \times 35-38 \mu$, the stalk $8 \times 15-20 \mu$. Receptacle $98 \times 40-45 \mu$, its basal cell $45-50 \times 20 \mu$. Main appendages 20μ , their branches $50-75 \mu$. Antheridia 20μ , their stalk-cells $10-12 \mu$.

On the mid left elytron of a black species of *Galerita* (from two specimens), La Plata No. 2021, P. Spegazzini.

This species resembles small forms of *L. punctata*, but differs in the complete absence of maculation, as well as in other minor points.

***Laboulbenia marginata* nov. sp.**

Basal cell of the receptacle hyaline, cells II and III opaque and indistinguishable, forming above a broad black margin extending upward so that the free distal margin is on a level with the insertion-cell; cell IV inwardly yellowish, obliquely elongated, externally dark brown, separated from the upper part of cell III by a clear oblique septum; cell V triangular, similarly suffused externally; both these cells, as well as the rest of the receptacle, transversely punctate. Cell VI and the cells above it subhyaline, soiled with dirty brown: the stalk of the perithecium hyaline, the main body deeply suffused, externally nearly straight and translucent, indistinctly punctate below, inwardly distinctly convex and opaque; the tip abruptly distinguished on both sides, opaque below the asymmetrical sulcate apex; the inner lips prominent, broad, rounded, the outer much smaller, lower, the pore turned obliquely outward. Insertion-cell indistinguishable from the opaque basal cells of the appendages, the blackened portion curved outward and upward and forming a free rounded prominence subtending the first outer branch; this blackened area larger than the hyaline compact main appendages, the cells of which are very narrow; those of the outer seven or eight in number, including the basal cell, somewhat obliquely associated in a but slightly oblique series; the

cells of the inner appendage more obliquely superposed, six or seven in number, the three lower bearing antheridial branches consisting of single basal cells terminated by single antheridia; the simple sterile branches of the upper cells extending to about the middle of the perithecium. Perithecium $250-275 \times 52 \mu$ exclusive of the stalk ($58 \times 30 \mu$). Receptacle $190-200 \times 90 \mu$. Appendages to tips of branches about 175μ ; the antheridia 24μ , their basal cell 20μ . Total length to tip of perithecium average $500-510 \mu$.

On the inferior surface of the abdomen of *Galerita Lacordairii*. Museo Nacional, No. 1428, "Argentina."

***Laboulbenia sordida* nov. sp.**

Resembling *L. perplexa*; rather slender; the basal cell of the receptacle hyaline, the rest becoming irregularly suffused with dirty olive brown; the region below the insertion-cell becoming nearly opaque, the subbasal cell sometimes lighter or hyaline distally; cell IV separated from cell III and V by parallel septa at an angle of 45° to the axis of the receptacle. Insertion-cell broad, thick, horizontal, opaque; the opacity involving the outer basal cell of the appendage which is externally prominent upward. The outer appendage consisting of a series of seven or eight obliquely superposed cells, coherent throughout with the inner appendage, short; all, including the basal cell, bearing erect branches, the two basal cells of which are dark brown, the rest of the branch nearly hyaline and extending to or slightly above the middle of the perithecium: the inner appendage consisting of a series of usually five cells on either side above the basal cell, the distal one bearing a short erect branch, while the four lower bear antheridial branches consisting of a well developed brown basal cell, bearing distally a pair of divergent, brown, somewhat curved antheridia. Stalk of the perithecium clearly distinguished, about as long as broad, hyaline, contrasting; the main body deep olive brown, straight, asymmetrical, very slightly inflated below; the tip slightly darker, short, asymmetrical, more or less well distinguished, its outer margin oblique; the apex translucent, obliquely rounded outward, subtended on the inner side by an opaque suffusion. Perithecium, exclusive of stalk, $215-235 \times 45-47 \mu$, the stalk $27-31 \times 27 \mu$. Receptacle $215 \times 66 \mu$. Appendages, to tips of branches, longest, 160μ . Antheridia $23-27 \times 6 \mu$.

On the tips of the elytra of a black *Galerita*, La Plata, No. 2021.

This species is most nearly related to *L. perplexa*, from which it is

best distinguished by the short coherent primary appendages, short branches, and numerous paired antheridia.

Laboulbenia Heteroceratis nov. sp.

Uniformly pale straw-yellow, very variable in form. Receptacle usually rather elongate, but sometimes short and stout, the subbasal cells larger than the basal, cells IV and V subequal. Insertion-cell concolorous with the cells below it, the primary outer appendage short, simple, cylindrical, hyaline, becoming distally flaccid; the inner consisting of a few ill defined short flaccid branches; the insertion-cell becoming very variably modified by secondary divisions, which may also involve the basal cells of the appendages so that the primary outer appendage may even become completely surrounded by small cells bearing either branches or curved antheridia, the branches sometimes forming a tuft of some length. Perithecium asymmetrical, the inner margin usually straight or slightly concave, the outer strongly convex; tapering to a snout-like tip so turned (in the Argentine material) that it is viewed sidewise and shows a blunt symmetrically rounded apex, subtended by a purplish shade. Perithecium $110-120 \times 35-40 \mu$. Receptacle $156-235 \mu$. Appendages $50-60 \mu$. Total length to tip of perithecium $220-340 \mu$.

Growing in various positions on species of *Heteroceros* sent from La Plata by P. Spegazzini in 1907, Nos. 1679-80. Also found on species of *Heteroceros* sent from Kansas by Dr. A. Stewart.

This very peculiar form varies greatly in general habit, and from the secondary divisions of its insertion-cell and the basal cells of its appendages may assume an appearance very similar to that of some of the aquatic forms on Gyrinidae. Its relationships seem to be evidently with the forms found on *Clivina* and its allies; although a similar production of sessile antheridia from proliferous cells such as occurs in the present instance is not seen in other forms. The above description is based in part on material obtained from American species of *Heteroceros* which were found among a small collection of beetles kindly procured for me by Mr. Alban Stewart in Kansas City. The measurements given above are from the Argentine material. The Kansas specimens show the slightly oblique asymmetrical tip of the perithecium from the usual point of view.

Laboulbenia funeralis nov. sp.

Dull blackish olive becoming opaque, except the basal and subbasal cells of the receptacle which are translucent dull olive, subequal, forming a curved or sigmoid stalk not abruptly distinguished from the rest of the receptacle, which is relatively narrow; the basal cell-region of the perithecium bulging externally, and forming a rounded flat, but usually distinct, prominence; above which the narrow perithecium tapers very slightly and evenly to the very broad tip, which is not distinguished; the apex partly hyaline bearing an inner shorter tooth-like appendage, and an outer which is longer and usually irregularly furcate. Appendages not very numerous, erect, septate at the base; the hyaline slender tapering distal portion extending to or beyond the apex of the perithecium. Perithecium $110-155 \times 35-40 \mu$; the longer terminal appendage (longest) 20μ . Total length to tip of perithecium $235-350 \mu$; greatest width $38-66 \mu$ including elevation at base of perithecium.

On the margins of the elytra of a species of *Gyrinus*, No. 1957, in a pond near the railroad station at Palermo.

This species which seems constant in specimens from a considerable number of different individuals, is very closely allied to *L. Gyrinidarum* from which it differs more especially in its smaller size, in the color and conformation of its basal and subbasal cells which have no yellow-brown tint, are similar and subequal; both being much longer than broad; in the marked prominence below the perithecium, the tip of which is not distinguished even on the inner side, as well as by its terminal usually furcate apical appendage.

Rhachomyces Argentinus nov. sp.

Rather slender. Cells of the receptacle tinged with pale brown, small, about as long as broad, ten or twelve of the lower visible; the remainder wholly concealed by the closely appressed, rather slender, copious black appendages; those about the base of the perithecium somewhat stouter with hyaline tips, closely appressed about the perithecium, nearly uniform in length, and extending nearly to its tip, which projects free beyond them. Perithecium straight, symmetrical, brown, the tip nearly black, the apex subhyaline, flat-conical or bluntly pointed. Perithecium $120 \times 40-43 \mu$. Longest appendages about 95μ . Total length to tip of perithecium $310-425 \mu$ (longest).

On the legs of a small carabid beetle resembling *Casonia*. Jujuy, Northern Argentine, No. 1430, Museo Nacional.

This species is most nearly allied to *R. Javanicus*, from which it is distinguished by its more slender, copious and closely appressed appendages, which conceal the axis of the receptacle distally, as well as by the somewhat pointed apex of its perithecium. The material includes two small specimens not more than 200 μ in length.

Scaphidiomyces nov. gen.

Axis consisting of a primary receptacle of two superposed cells, the subbasal bearing a primary branched appendage terminally, and subterminally a secondary receptacle consisting of an indeterminate series of superposed cells, which give rise alternately to stalked perithecia and to branches similar to the primary appendage. Antheridia simple, terminal on short branches. Perithecia normal.

This type, of which two other species are known on scaphidians, from the Argentine and West Africa, appears to be related to the Compsomycetaceae although the number of spores in the asci has not been definitely determined. Some of the branches of the secondary receptacle when young, show the same peculiar oblique septation characteristic of one of the appendages in *Compsomyces*; but this may not be significant, and the perithecium has but a single stalk-cell; the alternate production of branches and perithecia, and their association on the indeterminate secondary axis, have no parallel in any other genus. The characters of this type are nevertheless not clearly defined, and a definite conception of its limitations cannot be arrived at until sufficient material of other species is available.

Scaphidiomyces Baeocerae nov. sp.

Colorless, the perithecia becoming amber-brown at maturity, rather short and stout, somewhat inflated, subsymmetrical, narrowed distally to the broad tip; its apex broad, bluntly rounded or subtruncate; the basal cells similar, rather small, projecting slightly; the region hardly distinguished from the body, and concolorous with it: the stalk-cell hyaline, but slightly longer than broad, narrower below. Basal cell of primary receptacle longer than broad, narrowed and suffused with blackish brown just above the foot. The primary appendage consisting of two to three superposed cells, bearing distally short few-celled branches and branchlets. Secondary receptacle

continuous with and not distinguished from the primary, its axis of similar cells of approximately the same size, superposed more or less regularly in a somewhat zigzag fashion, the successive cells bearing with more or less regularity appendages similar to the primary appendage, and stalked perithecia of which there may be from one to four or five in various stages of development produced on the same side or alternating on opposite sides of the axis. Perithecia $75 \times 35 \mu$, the stalk-cells $15-18 \mu$. Appendages to tips of branchlets 70μ . Total length to tip of primary perithecium $150-310 \mu$.

On elytra of an undescribed species of *Baeocera*, a small scaphidian feeding on *Corticia* under moist logs. Llavallo. (Determined by Dr. Csiki.)

Scelophoromyces nov. gen.

Main axis consisting of a basal and subbasal cell forming a primary receptacle, and a series of cells superposed above it; the subbasal cell producing a lateral branch of several superposed cells, terminated by the primary perithecium: the upper cells of the axis, above the subbasal cell, producing more or less copious branches on the inner side and terminally; while one or more secondary perithecia with single stalk-cells may arise from the lower. The lower cells of the primary perithecial branch, and sometimes the subbasal cell of the receptacle, giving rise to slender supporting outgrowths, which curve down toward the substratum. Antheridia (?) simple, and formed terminally from the lower branchlets.

This genus is erected with some reluctance, since the nature of the antheridia is somewhat doubtful. The latter appear to be terminal cells of short lower branchlets from the main branches that arise from the upper cells of the axis above the subbasal cell, and which may be regarded as a primary appendage, or, since it gives rise to perithecia, as a secondary receptacle. Although numerous specimens are available, and the form has also been obtained from the Amazon region, the branches are for the most part not well preserved, even in the youngest individuals. The several-celled stalk of the primary perithecium would suggest that the relationships of the genus might be with the Compomycetaceae, while the production of what may be regarded as a secondary axis suggests *Clematomyces* and *Scaphidiomyces*. The adventitious branches which grow downward from the lower cells toward the substratum undoubtedly act as buffers, like those of *Ceratomyces rhizophorus* described below, and *Hydrophilomyces digitatus*,

described recently by Picard to which further reference is made below under *Ecteinomyces*.

Scelophoromyces Osorianus nov. sp.

Pale straw- or amber-yellow, concolorous, becoming dirty amber-brown with age. Perithecium subsymmetrical; main body distinguished from the slightly broader basal cell-region; of nearly equal diameter throughout, or but slightly inflated, the short stout tip abruptly distinguished, bent slightly outward; the apex broad and nearly truncate; the basal cells subequal, large, slightly prominent; two to six cells superposed to form the perithecial branch; the supporting branches simple, septate, tapering throughout to pointed extremities; two to four in number, one of them usually derived from the subbasal cell of the receptacle on the side opposite the perithecial branch. Main appendage, or secondary receptacle, consisting of eight to ten superposed cells, terminated by a more slender portion similar to the branches, which arise distally from cells obliquely separated on one or both sides of the upper cells of the main appendage; the branches more or less copiously branched, the ultimate branchlets forming more or less characteristic tufts, and curved toward the main axis: one to three of the lower cells usually producing a corresponding number of secondary perithecia similar to the primary one. Dimensions very variable. Perithecia, above basal cells, $95-110 \times 30-40 \mu$, the perithecial branch $25-120 \mu$, total length, including branch, $130-250 \mu$; basal cell-region $20-40 \times 25-30 \mu$. Total length to tip of longest branchlets (largest) 400μ . Supporting outgrowths $100-275 \mu$.

On abdomen and elytra of *Osorius sexpunctatus* Bernh., Palermo, No. 1693, and Isla de Santiago, La Plata, No. 1972. Also from the Amazon, (Mann), on a very large *Osorius*.

ECTEINOMYCES Thaxter.

I have called attention in my second monograph to the uncertain position of this genus, as well as of *Hydrophilomyces*; and also to the similarity between these two and *Misgomyces*. Although the examination of fresh American material of *Misgomyces Dyschirii* from Kansas, recently received in moderately good condition, appears to show that this is a distinct genus more nearly allied to *Laboulbenia*, a further study of forms allied to *Ecteinomyces* and *Hydrophilomyces* has forced me to the conclusion that it is inadvisable to retain both

these names, and that all the species are best united under the first. The antheridial characters are doubtful in all the species, and it is still uncertain whether the structures described as simple antheridia in both cases are actually functional as such; since no actual discharge has been observed from them. In these, as in other cases in which the antheridia are not clearly distinguished, either by their position or form, it is often very difficult to distinguish them from young sterile branchlets, unless the material is examined while still fresh, so that the discharge of sperm-cells can be observed. I have therefore concluded to drop the name *Hydrophilomyces*, using *Ecteinomyces* to include the three new forms below described, as well as *E. rhyncophorus* and *E. reflexus*.

Hydrophilomyces digitatus Picard on *Ochtebius marinus* from France described in the Bull. Myc. Soc. de France, Vol. XXV, p. 244, 1910, should also be changed to *Ecteinomyces digitatus* Picard, since it evidently belongs in this group.

Ecteinomyces rhyncophorus was found at Palermo on a small hydrophilid, and has also been obtained from Guatamala; the material in both cases corresponding in all respects to that originally obtained from Florida.

***Ecteinomyces filarius* nov. sp.**

Wholly hyaline. Perithecium rather long and narrow, straight, hardly inflated, the tip rather long-conical with straight margins, subtruncate or rounded, the apex symmetrical and subtended externally by a distinct prominence; the basal cell-region not distinguished, its cells flattened around the ascogenic cells; borne on a distinct short stalk-cell. Receptacle filamentous, slender, elongate, consisting of many (about forty) superposed cells; the distal ones becoming slightly broader, and occasionally cutting off a small cell subterminally or laterally; the axis continuous with an erect primary appendage of similar character, consisting of about six superposed cells, and lying close beside the perithecium and slightly exceeding it in length, bearing distally the remains of one or two branchlets. Spores (in perithecium) $30-35 \times 3 \mu$. Perithecium $70 \times 14 \mu$; the stalk-cell $8 \times 10 \mu$. Receptacle $230-275 \times 7-9 \mu$. Total length $290-340 \mu$.

On the elytra of *Coproporus rutilus* Er.; Tucuman, No. 1934, (P. Spegazzini).

The antheridia of this species have not been seen, and the types show only the bases of what appear to have been rather short branches

from the end of the appendage. Its hypha-like receptacle is even more striking than that of *E. Trichopterophilus*, from its greater length and more evenly cylindrical form.

Ecteinomyces Thinocharinus nov. sp.

Wholly hyaline. The receptacle usually tapering continuously from above to the minute foot, its axis continuous with that of the perithecium and consisting of from six to twelve more or less flattened cells, which may occasionally be divided longitudinally; the foot-cell of some individuals developing an upcurved appendage, deeply blackened except along its inner margin, of variable length, thicker and bluntly rounded at its tip. Perithecium clearly divided into a nearly symmetrical oval venter and a long, stout, nearly straight, isodiametric neck-portion, the base of which is subtended on the outer margin by a more or less distinct prominence formed by the slightly protruding extremity of the outer basal wall-cell; the tip hardly distinguished, tapering but slightly to the blunt symmetrical apex. Appendage slightly divergent, consisting of six or more superposed cells, the basal larger, angular, in contact on its inner side with the small basal and stalk-cells of the perithecium; the terminal cells bearing a group of rather coarse branches, once or twice branched, the ultimate branchlets not reaching to the tip of the perithecium. Spores, in perithecium, $20 \times 2.5 \mu$. Perithecia $120-130 \times 23-27 \mu$. Receptacle $55-65 \mu$. Foot-appendage 18μ . Appendage $35-50 \mu$, its branches $75-90 \mu$.

On the abdomen etc. of *Thinocharis exilis* Er., Temperley, No. 2004, and Palermo, No. 1701.

The curious black outgrowth from the foot of this species, occurs in about half the specimens; but while in these it is well developed, there is no trace of it in the others, even when fully matured and growing in the same position.

Ecteinomyces Copropori nov. sp.

Hyaline or faintly tinged with yellowish. Receptacle consisting of from ten to twenty superposed cells some of which may become irregularly divided by one or two longitudinal septa, the cells usually flattened, often irregular, the basal cell subtriangular and deeply suffused with blackish brown above the small foot. Appendage at first not distinguished from the receptacle and continuous with it,

slightly divergent when mature, consisting of a variable number (eight to twelve) of superposed cells, the series tapering distally, some or most of the cells cutting off one or two small cells on the inner side, sometimes also on the outer side from which branches arise as well as antheridia (?) which are irregularly flask-shaped, single and sessile or borne one or two together on short branchlets; the sterile branches usually broken and not copiously developed. Perithecium nearly straight, its axis usually continuous with that of the receptacle, a venter neck and tip more or less clearly distinguished, the latter bent very slightly inward, the apex blunt and usually becoming minutely six-papillate; the outer, lower wall-cell slightly prominent below the neck; the two upper basal cells extending upward beside the venter, the stalk-cell short and subtriangular. Perithecium $140-200 \times 38-44 \mu$, smallest $100 \times 25 \mu$, stalk-cells and lower basal cells 20μ . Spores in perithecium $35 \times 3.5 \mu$. Receptacle average 200μ . Appendage $60-100 \mu$. Total length to tip of perithecium about 325μ .

On the abdomen of *Coproporus rutilus* Er.; Tucuman, No. 1933, P. Spegazzini. Also from Los Amates, Guatemala, No. 1614 (Kellerman).

The material of this species is not in very good condition and it is difficult to determine the character of the appendages and antheridia from them. The Guatemalan material includes only three specimens in which the perithecia are mature, and in these the papillation of the apex is either indistinct or lacking; but, although the individuals are somewhat larger, the perithecia more divergent, and the cells of the receptacle shorter and broader than the Tucuman material, the two forms seem identical.

***Autoicomycetes bicornis* nov. sp.**

Pale yellowish with a smoky tinge, deepest at the base of the perithecium. Basal and subbasal cells of the receptacle rather large, of about equal length. Appendage usually straight, somewhat divergent, comparatively slender; consisting of six or more superposed cells, and bearing a few small branchlets. Perithecium nearly straight externally, its inner margin convex; the tip lying in the fork formed by two outgrowths which arise symmetrically just below it from the wall-cells on either side; the outer shorter, rather closely septate, tapering to a blunt apex, and curved inward; the inner two or three times as long, usually septate only at the base, curved away from the perithecium and tapering to a blunt point. Perithecium $95-110 \times$

40–45 μ , its longer appendage 60–200 μ , the shorter 70–78 μ . Appendage 135 μ . Receptacle 80×35 μ . Total length to tip of perithecium 175–190 μ ; to tip of inner appendage 310–370 μ .

On the inferior surface of the abdomen of *Berosus* sp. or a closely allied genus. Palermo near Belgrano, No. 1944.

A species readily distinguished by its paired perithecial appendages, but conforming strictly to the type so clearly marked in this genus.

***Ceratomyces rhizophorus* nov. sp.**

Receptacle small, hyaline, normal; the second and third cells broad and much flattened. The appendage long, of nearly equal diameter throughout, composed of numerous short flattened cells bearing scattered branches. The basal cell, and one or more of the upper cells of the receptacle, developing short rigid curved simple outgrowths, which grow downward to the substratum. Perithecium stout, tapering distally to a well distinguished, abruptly narrower, bluntly rounded tip; each marginal row of wall-cells comprising about twenty cells. Perithecium 100×40 μ . Appendage 135×16 μ (broken). Receptacle 50 μ , the foot 20 μ . Total length to tip of perithecium 150 μ .

At the tip of the left anterior leg of *Tropisternus* sp. Palermo, near Belgrano, No. 1645.

All but two specimens of this small and peculiar species were unfortunately destroyed by accident, while they were being mounted, so that it has been necessary to base the above description on a single nearly mature, and one younger individual. It is, however, so peculiar, and so well characterized by its supporting outgrowths that it has seemed safe to give it a name. The outgrowths are evidently buffers, similar in function to those described in *Ecteinomyces* (*Hydrophilomyces*) *digitatus* Picard, and of *Scelophoromyces* described above.

***Ceratomyces ventriosus* nov. sp.**

Receptacle relatively long, the subbasal cell and the cell above it deeply blackened laterally, the suffusion extending upward and involving the outer margin or half of the cell which subtends the appendage. Appendage long and relatively slender, bearing a few scattered branches, the lower cells somewhat flattened and becoming divided by a few oblique septa. The receptacle, appendage and base of perithecium pale yellowish, or with a reddish-amber tinge. Peri-

thecium relatively very large and long, about forty-five cells in each row of wall-cells; more or less evenly curved away from the appendage, deeply rich red amber-brown, except at its pale narrower base, of the lower half characterized by a belly-like enlargement; the upper half of nearly the same diameter throughout; the tip subtended externally by a vesicular enlargement of one of the wall-cells, its hyaline apex pointed and bent inward toward the concave base of the long appendage, which is usually abruptly curved at its base, more or less deeply suffused or opaque below, tapering very slightly, consisting of about twelve cells, the lowest of which is comparatively small, and not extending above the apex of the perithecium. Perithecium $550-700 \times 100-110 \mu$ (lower half) and $65-75 \mu$ (upper half), the appendage $250-350 \times 30 \mu$.

On the inferior surface of the abdomen, near the tip on the left side of *Tropisternus* sp.; Palermo, near Belgrano, No. 1949.

The long appendage of this remarkable species is very similar to that of the last, to which it seems to be most nearly allied, but from which it is easily separated by the form of its receptacle and its enormous pot-bellied perithecium.

***Ceratomyces marginalis* nov. sp.**

Uniform dirty translucent amber-brown. Receptacle small, the foot and basal cell opaque and indistinguishable; the two cells above greatly flattened, the subbasal partly involved below by the suffusion of the cells above. The appendage small, short, consisting of four or five superposed cells, terminated by a few branchlets, erect, appressed against the perithecium or but slightly divergent. Perithecium relatively large, about eight wall-cells in each row, straight, but slightly and rather evenly inflated; the tip not distinguished, but terminated by an erect hyaline nearly cylindrical slender blunt apical prolongation, subtended by a relatively very large sigmoid appendage, which curves toward and beyond it, thence bending and tapering upward, and composed of a series of eight or nine superposed cells of about equal length, sometimes terminated by a few short colorless branchlets. Perithecium $90-110 \times 35-45 \mu$, the longest appendage 100μ . The receptacle, including foot, $55-60 \times 30 \mu$. Appendage $60 \times 7 \mu$. Total length to tip of perithecium $135-150 \mu$, to tip of appendage 225μ .

Beneath the margin of the elytra of a small pale hydrophytid. Palermo, near Belgrano, No. 1952.

In general habit this species is not unlike *C. minisculus* from which it is at once distinguished by its large perithecial appendage.

***Ceratomyces intermedius* nov. sp.**

Receptacle faintly tinged with amber-brown, rather short, externally opaque above the basal cell to the base of the appendage, the blackening involving the outer half or less of the cells concerned; the cell subtending the appendage slightly prominent externally, below the latter. The perithecium and appendage usually divergent at the base of the latter, which is faintly tinged with amber-brown, stout, curved outward; consisting of a series of cells smaller distally, about six of the lowest very broad and flattened, becoming divided more or less irregularly by oblique partitions, and bearing a few scattered branchlets on the inner side. Perithecium large, stout, deeply tinged with dull amber-brown, paler at the base where it is distinctly narrower, the distal two thirds of nearly the same diameter throughout, or the middle third somewhat inflated; the tip short abruptly distinguished externally, being subtended by a rounded prominence in which the series of wall-cells below it ends, its apex hyaline, asymmetrically rounded or outwardly oblique; the simple perithecial appendage becoming deeply suffused or opaque except at its bluntly pointed tip, erect or bent inward, consisting of from about six to eight successively smaller cells, the lower becoming deeply suffused; the basal cell very large, concave within, convex externally, the whole assuming a sigmoid curvature as it matures. Perithecium $310-390 \times 80-105 \mu$, the base $50-60 \mu$; the appendage $105-170 \mu$. Receptacle $74-82 \times 75-78 \mu$, without foot (30μ). Appendage $200 \times 45-48 \mu$ at base. Total length to tip of perithecial appendage 660μ .

On the left anterior margin of the thorax of *Tropisternus* sp.; Palermo, near Belgrano, No. 1946.

A large and clearly distinguished species, intermediate between *C. mirabilis*, which it more nearly resembles in its perithecial characters, and *C. cladophorus*, which has a similar though somewhat more highly developed appendage.

***Synaptomyces* nov. gen.**

Receptacle indeterminate, consisting of a series of superposed cells; the uppermost of this series followed by two cells placed side by side, one of which is separated by a single small cell from the basal cell of

the appendage, while the other forms the base of the outer series of wall-cells of the perithecium. The appendage consisting of a series of superposed cells bearing scattered branchlets. Perithecium many-celled, indeterminate, without distinction of venter and neck, appendiculate on the inner side below the tip.

This genus, of which two other species are known on *Hydrocharis*, one from North America, and another from Africa, appears to be intermediate between *Ceratomyces*, which it resembles most nearly in the characters of its perithecium, and *Rhyncophoromyces*, which possesses a similar indeterminate receptacle. Although in the present species, which is taken as the type, several appendages develop in a compact group below the apex of the perithecium, in the African form there is only one which is very similar to that seen in species of *Ceratomyces*. The North American form, of which I have only one undeveloped individual, shows that the sperm-cells are developed exogenously exactly as in *Rhyncophoromyces*.

***Synaptomyces Argentinus* nov. sp.**

Receptacle consisting of a series of about twenty superposed, much flattened, cells; surmounted by two somewhat unequal cells separated from one another by an oblique septum; a transversely elongated rounded cell lying obliquely between the anterior of the two and the basal cell of the appendage, which is more or less conspicuously indented externally. The appendage somewhat broken in the types, its basal or subbasal cell giving rise to a simple branch, the main axis of undivided superposed cells proliferating to form several slender branches, which arise from its tip. Perithecium relatively large and stout, hardly inflated above the base, slightly narrower distally, the papillate tip abruptly distinguished; the apex broad and asymmetrically rounded, the perithecial appendages arising in a group just below the tip on the anterior side, usually three being superposed; their extremities free, their bases laterally coherent, some of them proliferating to form slender terminal hyaline branchlets. Perithecium $335 \times 80-390-105 \mu$; its appendage without terminal branchlets $110-120 \mu$. Receptacle $250-275 \times 70-80 \mu$ distally. Appendage (broken) $160 \times 15-18 \mu$. Total length to tip of perithecium $700-750 \mu$.

On the left inferior margin of the thorax of *Hydrocharis* sp., No. 943, Palermo, near Belgrano.

In addition to the new forms above described the following species were found, and also a few others that are not determinable.

Acompsoomyces brunneolus Th. A species closely allied to the North American form, was obtained at Palermo on a small *Corticaria* (?) The conformation of the tip of the perithecium is very similar, but the latter is shorter and stouter, its broad base abruptly distinguished from the somewhat longer narrower straight stalk-cell. The stalk-cell of the appendage is also quite hyaline. Since the type form has been found only once, its variations are not yet known, and it seems inadvisable to separate the Argentine form until further material of both is available.

Camptomyces melanopus Th. Several well matured and typical specimens of this species were found on the abdomen of *Sunius* sp., No. 2002, at Temperley, but although very many specimens of *Sunii* were examined it was not again met with.

Chaetomyces Pinophili Th. was found very rarely on *Pinophilus suffusus* Er., although its host was very common at Llavallol. The material differs in no respect from that obtained in North America.

Ceratomyces mirabilis Th. was very common on *Tropisterni* at Palermo, near Belgrano, the specimens exactly like those from New England.

Ceratomyces ansatus Th. was also common, and as usual did not occur on the wholly black species of *Tropisternus*.

Ceratomyces filiformis Th. Several typical specimens were obtained growing at the tip of the posterior legs of several *Tropisterni*.

Ceratomyces minisculus Th. was found once on a species allied to *T. lateralis*.

Compsomyces verticillatus Th. was found rather rarely on species of *Sunius* at Temperley and Llavallol, Nos. 1995 and 2002, the individuals differing in no essential respect from the North American type.

Corethromyces purpurascens Th. This species was found very commonly in the vicinity of Buenos Aires on an evenly, rather pale brown species of *Cryptobium*, and appears to be very constant in its characters, varying only in the luxuriance with which the branches of the appendage are developed.

Corethromyces Stilici Th. This species was found in abundance on several species of *Stilicus*, the normal form like that first collected at Interlaken, Switzerland, being sometimes associated with one in which the stalk-cell of the perithecium is enormously developed, the body of the perithecium being at the same time more elongate, its

wall-cells more markedly spiral and with the appendage somewhat reduced. Although perhaps worthy of varietal rank, it has not seemed desirable to separate this form specifically.

Dichomyces furciferus Th. was found several times at Palermo and at Temperley on *Philonthus hepaticus* Er., No. 1960.

Dichomyces vulgatus was met with rarely on a large *Philonthus* at Llavallol, No. 1490 and 1936, and occurred on a *Philonthus* collected by Propile Spegazzini in Tucuman.

Dichomyces princeps Th. was found rarely at Palermo on a species of *Philonthus*, No. 1958.

Dichomyces Homalotae Th. Typical material of this species was found several times at Palermo, No. 1964, and at Temperley, No. 2008, on *Atheta sordida* Marsh.

Dichomyces sp., a species apparently unlike the North American form on *Xantholinus*, was found on a small species of this, or a closely allied genus at Llavallol, No. 1497, at Temperley, No. 2003 and at Tucuman, No. 1931 (P. Spegazzini), but the material is too scanty to make a positive determination possible.

Dimeromyces Labiae Th., was found in abundance on *Labia minor*, No. 1974, in the park at Palermo, the specimens corresponding exactly to those obtained at Cambridge.

Ecteinomyces rhyncophorus Th., on a small hydrophilid at Palermo.

Eumonoicomyces Papuanus Th. A form which does not appear to differ essentially from the Papuan material of this species was found occasionally on the legs of a species of *Oxytelus* (?) at Temperley. This appears to be the form described as *E. Argentinensis* Speg.

Herpomyces Paranensis Th. was found in abundance on the antennae of a large roach (*Blabera* ?) inhabiting the roof of the Museo Nacional at Buenos Aires.

Kleidomyces furcillatus Th. This peculiar species, formerly known only from a single complete specimen, was found in perfect condition and not uncommonly on species of *Aleochara* at Temperley, Llavallol, and the Isla de Santiago. An examination of abundant material shows conclusively that its separation from *Monoicomyces* is inevitable owing to the quite different character of its antheridium which is furnished with a lateral pore.

Laboulbenia Aspidoglossae Th. on *Aspidoglossa* sp. (?) was common in the park at Palermo and resembled the North American material in all respects.

Laboulbenia bicolor Th. This small species was found abundantly on the elytra and legs of a black *Galerita*, No. 2021, collected at La

Plata by P. Spegazzini, and also on the legs of *G. Lacordairii*, No. 1428, in the Museo Nacional. It resembles the type form from Venezuela in that the basal cell of the outer appendage is similarly modified but lacks the constriction, so characteristic in the type, above the basal cell of the receptacle. In the latter respect it approaches more nearly the distinctly larger Brazilian specimens obtained on *G. carbonaria*, in which, however, the basal cell of the outer appendage is unlike that of the type.

Laboulbenia Brachini Th. was again obtained abundantly from various species of *Brachinus*, and from different regions in the Argentine.

Laboulbenia Clivinae Th. on *Clivina* sp. and entirely typical was found on a specimen in the Museo Nacional, No. 1430, "Argentina."

Laboulbenia compacta Th., was found but twice on *Bembidia* outside the docks at Buenos Aires, No. 1969 and 1967.

Laboulbenia cristata Th. was found but once on *Paederus* sp., No. 2029 La Plata.

Laboulbenia geniculata Th. Several specimens of this species, which correspond exactly to the type, were obtained with several other species on a black *Galerita* collected at La Plata by P. Spegazzini.

Laboulbenia decipiens Th. was found on a black *Galerita*, No. 1439, from Tucuman, in the Museo Nacional.

Laboulbenia Mexicana Th. a pale and variable species, usually found only on the mid-elytra, occurred on two species of *Galerita*, Nos. 2020 and 2021 from La Plata, and Llavallol; also on a species from the Pampa Grenada, No. 1442 and from Jujuy, No. 1445, both in the Museo Nacional.

Laboulbenia Oedodactyli Th. was found repeatedly on *Oedodactylus fuscobrunneus* Fairm. No. 1976, at Llavallol and at Temperley. The material is in good condition and in a majority of individuals the outer appendage is greatly elongated, almost as much so as in *L. Lathropini*, which is its nearest ally, but from which it is distinguished at once by the character of its wall-cells which are neither striate nor spirally twisted.

Laboulbenia pedicillata Th., occurred rather rarely on *Bembidium* at Buenos Aires. No. 2016.

Laboulbenia Philonthi Th. was very common on various species of *Philonthus* throughout the whole Buenos Aires region.

Laboulbenia polyphaga Th. The forms allied to this species and to *L. flagellata* were numerous on many genera of Carabidae. The whole series needs much careful study of abundant material. Nos. 1506,

2019, 2022, 2023, 2024, 2025, 2026, 2027, 1445, 1444, 1970, 1997, 2010, 2014, 2017, 2022.

Laboulbenia Pterostichi Th. was found occasionally on carabids, all allied to *Pterostichus*, near Buenos Aires.

Laboulbenia punctata Th. was found on the head of a large *Galerita* with red prothorax, from Tucuman No. 1441, the individuals for the most part immature and somewhat smaller than the type, but otherwise identical with it.

Laboulbenia Pygmaea Th. was obtained on *Galerita* sp. from Jujuy, northern Argentina, in the Museo Nacional, occurring on the tip of the abdomen. The species seems to vary chiefly in the relative width of its receptacle which may be considerably narrower than it is represented in my Monograph, Part II, Plate LXII, fig. 6.

Laboulbenia sigmoidea Spegazzini. This well marked species which is most nearly allied to *L. elegans* Th., was found on the left inferior margin of the prothorax of a carabid named in the Museo Nacional *Argutor Bonariense*, but referred to by Spegazzini as an *Argutoridius* in his original description, Fungi Chilenses, p. 134 (Buenos Aires, 1910). It was found by me near Santiago, Chile, and in several localities in the vicinity of Buenos Aires, but although the host is common it was rather rare. The host-genus is *Pterostichus*.

Laboulbenia Tachyis Th., or a very closely allied form, was found repeatedly on a *Bradycellus* sp. in the park at Palermo, No. 1697, also at Temperley, No. 1517, and at Llavallol, No. 1996.

Laboulbenia Tezana Th. A single immature individual that appears to belong to this species was obtained on a species of *Brachinus* on the Isla de Santiago, La Plata. The other forms heretofore grouped as varieties of this species, are referred to above (p. 56). Among these *L. incurvata*, *L. retusa* and *L. tibialis* were again found in the Argentine.

Laboulbenia variabilis Th. was common about Buenos Aires, as it appears to be everywhere else in South America, Nos. 1433, 1435, 1443, 1446 etc.

Laboulbenia vulgaris Th., which appears to have been described as *L. Chilensis* by Spegazzini, is everywhere common on *Bembidia* in Chile and the Argentine. There seem to be no characters indicated either by Spegazzini's description or figures which would suggest that *L. Chilensis* should be considered distinct. (Spegazzini, Fungi Chilenses, p. 133.)

Moniocomyces Homalotae Th. A few typical specimens of the smaller form of this species on *Atheta* sp., No. 1510, were found at Palermo. Another species closely allied to *M. Homalotae*, was

found on *Ophioglossa* sp., but the material is not sufficient for description.

Monoicomyces nigrescens Th. A form corresponding in all respects to the North American material of this species was found abundantly in the Buenos Aires region on the tip of the abdomen of *Meroneva Sharpi* L. Arrib., No. 1503, Palermo, Temperley and Llavallol.

Rhyncophoromyces rostratus var. similar to that which is figured in my first Monograph, Plate XXIV, fig. 26, was found several times at Palermo on the margins of the elytra of a pale Hydrophilid. This form will probably have to be separated from the type, eventually.

Stigmatomyces virescens Th., which is probably cosmopolitan, having been received from Borneo, as well as Brazil and the West Indies, was obtained on a dull coccinellid collected by P. Spegazzini at La Plata.

Zodiomyces vorticellarius Th. The monstrous Argentine form previously recorded from Rosario, Argentina, was again met with at Palermo, on a large *Hydrophilus*, and the normal type was also found on smaller hydrophilids. A form perhaps specifically distinct was also found on a small hydrophilid, but sufficient material was not obtained.

NOTE. Since the present paper was in type I have received from Professor Spegazzini his "Contribución al Estudio de las Laboulbeniomycetas Argentinas," Buenos Aires, June, 1912, and have made such alterations in my own account as seemed absolutely necessary; reserving further comment on the paper for some more convenient time.



